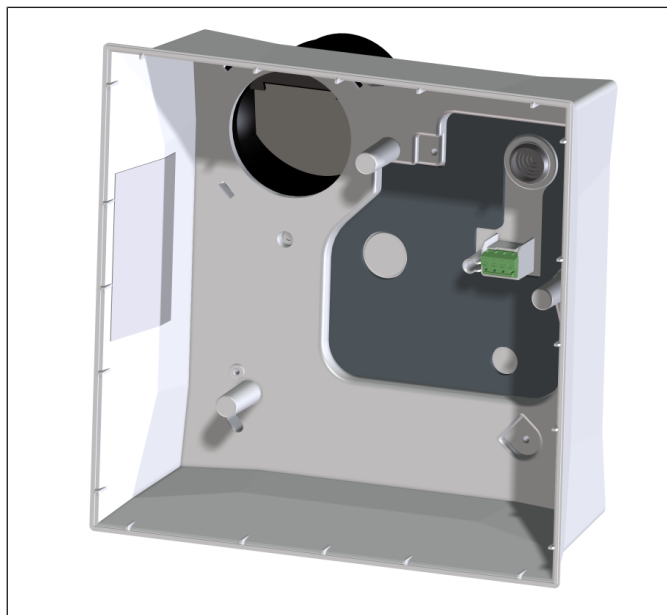


# Installation and operating instructions



ER GH AP  
ER GH APB

[www.maico-ventilatoren.com](http://www.maico-ventilatoren.com)



Surface-mounted exhaust air system for single-duct air extraction according to DIN 18017-3

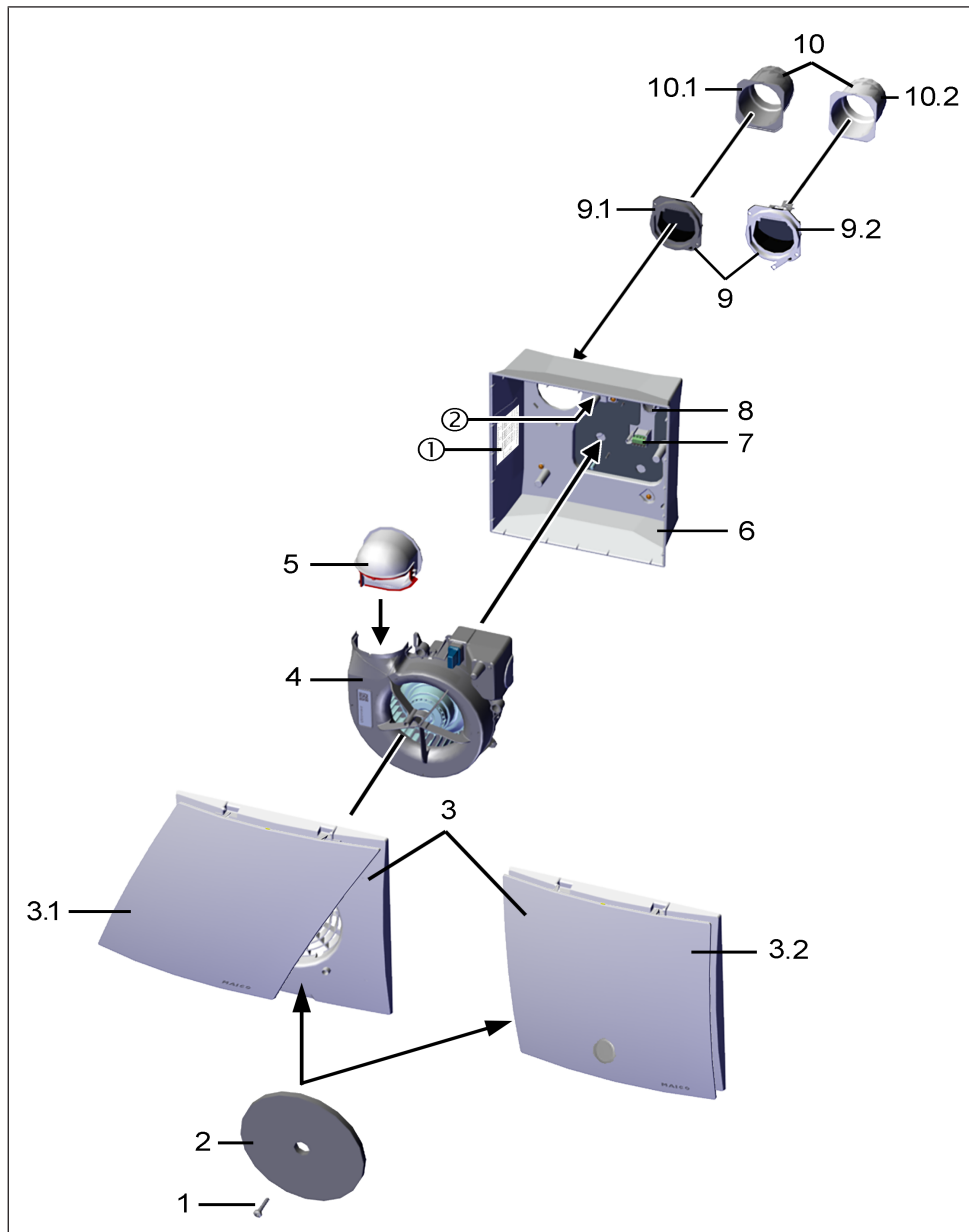
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## **Preface**

Please read the instructions carefully before installing and using for the first time. Follow the instructions. Pass these instructions on to the owner for safekeeping.

## System overview



1 Central screw

2 G2 air filter

3 Covers

3.1 **ER-A** cover



## 1 Scope of delivery

3.2	<b>ER-AB</b> cover ( <b>ER-AK ER-AH</b> not shown in figure)
4	<b>ER EC</b> fan insert
5	Air outlet adapter
6	Housing with housing floor seal. Housing for air outlet direction to the rear
7	Terminal block
8	Stepped grommet
9	Shutter support with backflow preventer
9.1	Plastic backflow preventer
9.2	Metal backflow preventer
10	Exhaust socket, DN 75/DN 80 (provided)
10.1	Plastic exhaust socket. Installation with socket to the rear
10.2	Metal exhaust socket. Installation with socket to the rear
①	Wiring diagram (Tick device type.)
②	Rating plate

## 1 Scope of delivery

### ER GH AP surface-mounted housing

Article no. **0084.0352**

- Surface-mounted housing with provided plastic exhaust socket for connection to the DN 75/ DN 80 exhaust air duct.

### ER GH APB surface-mounted housing

Article no. 0084.0353

- Surface-mounted housing with provided fire protection shut-off device for connection to the DN 75/DN 80 exhaust air duct.

### Other components

- 3 screws for fixing the fan insert
- Blind plugs for side power input of the fan insert
- Air outlet adapter
- Installation and operating instructions

## 2 Specialist installer qualifications

Installation may only be carried out by **trained specialists** who have the necessary knowledge and experience in **ventilation engineering**. The unit must be connected in accordance with the national technical approval.

Only a **qualified electrician** is permitted to work on the electrics. You are deemed a qualified electrician if you are familiar with the relevant standards and guidelines, can competently and safely connect units to an electrical power supply in line with the Wiring diagrams and are able to recognise and avoid risks and dangers associated with electricity on the basis of your technical training and experience.

## 3 Intended use


**ER EC** fans are used to extract air from interior bathrooms and toilet rooms, storage rooms or open-plan kitchens (with outside windows), for example in multi-storey residential buildings, retirement homes or hotel complexes.

Installation in a ventilation shaft, in the wall, front wall or a suspended ceiling is permissible.


The fans are only intended for domestic use and similar purposes.

## 4 General safety instructions

**The unit must not be used in the following situations under any circumstances:**


 **DANGER Risk of combustion/fire from flammable materials, liquids or gases in the vicinity of the unit.**

Do not place any flammable materials, liquids or gases near the unit, which may ignite in the event of heat or sparks and catch fire.

 **DANGER Explosion hazard due to gases and dust.**

Explosive gases and dust may ignite and cause serious explosions or fire.


Never use unit in an explosive atmosphere (risk of explosion).

 **DANGER Explosion hazard due to explosive substances in the lab extraction units.**

Explosive substances in lab extraction units may ignite and cause serious explosions or fire.

Aggressive substances may damage the unit.

Never use unit in combination with a lab extraction unit (risk of explosion).

 **WARNING Risk to health from chemicals or aggressive gases/vapours.**

Chemicals or aggressive gases/vapours may harm health, especially if they are distributed throughout the rooms by the unit.

Never use unit to distribute chemicals or aggressive gases/vapours.

**NOTICE Damage to unit due to steam-saturated or greasy air or adhering solid particles.**

Steam-saturated or greasy air or solid particles which may adhere to the unit, can soil the unit and reduce the efficiency.  
Never use unit to convey these substances.

**NOTICE Damage to unit due to grease and oil vapours from range hoods.**

Grease and oil vapours from range hoods may contaminate the unit and air ducts and reduce efficiency.  
Never use unit to convey these substances.

**NOTICE Damage to the unit when continuously conveying steam-saturated air.**

Never use unit to convey steam-saturated air

**NOTICE Damage to the unit due to imbalance of the impeller when conveying solid particles.**

Never use unit to convey solid particles that could adhere to the unit.

**NOTICE Unit damage during the construction phase, caused by soiling of the unit and air ducts.**

Unit operation is not permitted during the construction phase.  
Do not operate unit during the construction phase.

**NOTICE Damage to unit in the event of moisture ingress.**

IP X5 (protection against water jets).  
Never use unit outdoors.

## 5 Safety instructions regarding installation, operation, cleaning and maintenance

**⚠ DANGER Risks for children and people with reduced physical, sensory or mental capabilities or a lack of knowledge.**

Unit may only be installed, commissioned, cleaned and maintained by persons who can safely recognise and avoid the risks associated with this work.

**⚠ DANGER Danger of electric shock from operating the unit when not fully mounted.**

Electric components are a potential source of electric shock.

If the unit is open, all off the supply circuits must be switched off (mains fuse off), secured against being accidentally switched back on and a visible warning sign must be attached.

Only operate the unit when it is completely installed.

**⚠ DANGER Danger if the relevant regulations for electrical installations are not observed.**

Before removing the housing cover or removing the fan insert and before installing the electrics, switch off all supply circuits, switch of mains fuse and secure it against being accidentally switched back on again. Attach a warning sign in a clearly visible place.

Be sure to observe the relevant regulations for electrical installation; e.g. DIN EN 50110-1. In Germany, particularly observe VDE 0100, with the corresponding sections.

A mains isolation device with contact openings of at least 3 mm at each pole is mandatory.

Only connect unit to permanently wired electrical installation and with NYM-O or NYM-J cables, depending on the unit variant, 3 x 1.5 mm<sup>2</sup> or 5 x 1.5 mm<sup>2</sup>.

Units may only be operated using the voltage and frequency shown on the rating plate.

Unit may be energized even when at a standstill and may switch on automatically due to sensors (time delay, humidity etc.). Maintenance and fault finding only permissible when carried out by qualified electricians.

The degree of protection stated on the rating plate is only guaranteed if installation is undertaken correctly and if the connecting cable is correctly guided through the stepped grommet (The grommet must completely enclose the cable sheathing). The fan insert must also be engaged and the housing cover installed.

**⚠ DANGER Danger due to fire transmission** if an incorrect connection duct is connected to the housing. Always use the correct cable material for the respective housing. Requirements in line with approval [▶ 10].

if an incorrect ceiling compound is used for exhaust air systems with an intermediate ceiling (**ceiling barrier system**). Ensure that the gap remaining between the main duct and wall or ceiling is fully sealed with non-flammable materials resistant to deformation, such as concrete, cement mortar or plaster.

**⚠ WARNING Risk to health if filters are not replaced or if there are no air filters.**

Heavily soiled or moist air filters can accumulate harmful substances (mould, germs, etc.). This may also happen if the unit is shut down for an extended period. If the air filter is missing, the unit and air ducts become soiled. Never operate the unit without air filters. Only use original filters.

Regularly change air filter when a filter change is indicated (LED or TimeStrip).

If the unit has not been used for a long time, always replace the air filters.

**⚠ WARNING Risk of injury when working at heights.**

Use appropriate climbing aids (ladders).

Stability should be ensured, if necessary have the ladders steadied by a 2nd person.

Ensure that you are standing securely and cannot lose your balance and that there is no one under the unit.

**⚠ WARNING Risk of injury and risk to health from parts which may affect the ventilation system which are added or modified at a later date.**

Parts (range hood, air-ventilated fireplace etc.) which are added or modified at a later date may result in health risks and operation which is not permitted. Parts may only be added or modified at a later date if system compatibility is established/ensured by a planning office. If using an exhaust air range hood or air-ventilated fireplace, this must be accepted by a regional master chimney sweep.

**⚠ WARNING Risk of injury and health risk in the event of changes or modifications or if components which are not permitted are used.**

The unit may only be operated with original components. Changes and modifications to the units are not permitted and release the manufacturer from any guarantee obligations and liability, **e. g. if the housing is drilled at a point which is not permitted.**

**⚠ CAUTION Exercise caution when handling packaging materials.**

Observe applicable safety and accident prevention requirements.

Store packaging material out of the reach of children (risk of suffocation).

**NOTICE Non-intended operation/impermissible operation due to incorrectly mounted unit.**

Only install unit in accordance with the planning documents.

In particular, note the information on ventilation channels and sound deadening.

Observe planning instructions regarding unit position and distance to other façade components. If necessary, use isolating elements.

## 6 System and product information

### 6.1 Certificates of approval

Certificates of approval on request.

### 6.2 Installation conditions

**If installed in accordance with DIN 18017-3, use is only permitted:**

- in single air extraction systems with a common main duct;
- with an air supply via shaft or duct;
- with permitted connection ducts;
- with the ER EC housing suited to the system;
- if correctly installed as per the instructions in this manual and national technical approval;
- with sufficient space from the wall or ceiling;
- if unit is completely installed;
- with the correct air filters;
- with the outside air openings stated in the planning documents.

**If the installation deviates from DIN 18017-3:**

- ER EC fans can also be used as standalone units.
- Installation in the wall or ceiling is permitted.

### 6.3 Permitted exhaust air systems

The ER EC single air extraction system can be used in combination with a **ceiling barrier system** inside and outside the shaft.

Use in an air extraction system is permissible **without protection requirements**.

### 6.4 Possible combinations



- ER-A
  - ER-AC
  - ER-AH
  - ER-AB
- ER EC
- ER GH AP
  - ER GH APB

The electrical cable and ventilation connection are to be laid in the **shell construction phase**.

**Final mounting** is undertaken once the plastering and paint work is complete: Place the fan insert into the housing and attach the cover with air filter. For covers ER-AK, ER-AH and ER-AB, adjust the setting values as necessary.

#### ER GH surface-mounted housing

- DN 75 or DN 80 connection diameter.
- Plastic housing without fire protection equipment. Can be combined with ceiling barrier system.
- Sealed housing with water jet protection for areas 1 (IP X5).

### 6.5 Covers: Functions

	ER-A	ER-AK	ER-AH	ER-AB
Filter change indicator (6 months) with TimeStrip	•			
Filter change indicator (6 months) with LED		•	•	•
Control with time module		•	•	•
Control with fully automatic humidity control: Extraction takes place automatically if the specified switch-on humidity is exceeded.			•	

- Turn air outlet to the rear, upwards or to the right side by turning the housing by 90°.
- ER-AP: Model without fire protection. With maintenance-free plastic backflow preventer.
- ER-APB: Fire protection model with maintenance-free fire protection shut-off device K 90-18017 (metal backflow preventer with soldered strut).
- Exhaust socket locked in housing.
- Electrical connection at rear. Cable feedthrough with stepped grommet.
- Mains cable type NYM-O or NYM-J, 3 x 1.5 or 5 x 1.5 mm<sup>2</sup>
- For the wall or ceiling installation, outside the exhaust air shaft.
- Permissible air outlet direction for wall installation towards the rear.
- Fan insert is fastened with 3 screws.

#### ER EC fan insert

- Fan insert for installation in housing.
- Electrical plug connection for quick installation in the housing.
- Energy-saving EC motor.
- Motor not speed controllable.
- Air blow-out adapter (scope of delivery) for conversion of air outlet towards the rear (Conversion of air blow-out adapter for using the AP housing [► 18]).

#### Covers

- Cover with exhaust air filter. Trouble-free filter change without tools.
- ER-AH and ER-AB: Barrier-free products, switch on and off automatically.
- ER EC fans with water jet protection for areas 1 (DIN VDE 0100-701).

	ER-A	ER-AK	ER-AH	ER-AB
Control with motion detector. Full load level after motion is detected (range motion sensor is 5 m)				•
Barrier-free product, as it switches itself on and off automatically			•	•
Not speed controllable	•	•	•	•
Electrical plug connection for quick connection of the ER EC with ER GH housing and ER-AK, ER-AH or ER-AB with the ER EC fan insert.		•	•	•
Air volume – base load 30 m <sup>3</sup> /h for continuous operation	•	•	•	•
Air volume of the base load and full load levels can be set		•	•	•
Additional air volumes that can be set in base load: 20 m <sup>3</sup> /h, 40 m <sup>3</sup> /h, 60 m <sup>3</sup> /h or 100 m <sup>3</sup> /h and in full load: 20 m <sup>3</sup> /h, 30 m <sup>3</sup> /h, 40 m <sup>3</sup> /h or 100 m <sup>3</sup> /h		•	•***	•
Full load level on/off via light switch or separate switch. During manual operation (e.g. using light switch), the start delay and overrun time apply.	•	•	•	•
Full load operation (60 m <sup>3</sup> /h) with start delay of 60 seconds and overrun time of 15 minutes, non-adjustable	•			
Full load operation (60 m <sup>3</sup> /h), start delay can be set with 0, 30, <b>60*</b> , 90 or 120 seconds		•	•	•**
Overrun time of the full load level can be set for 0, 3, 6, <b>15*</b> , 24 or 30 minutes		•	•	•
Adjustable interval control for ventilating rooms that are not regularly used. Time interval can be set for <b>0*</b> , 1, 2, 4, 6 or 12 hours, 10 min. operating time per interval		•	•	•
Interval control can be switched off.		•	•	•
Switching option: The base load can be switched on or off by an additional switch (Wiring diagrams).	•	•	•	•

\* Factory setting: Tolerance of time details max. ± 5 %

\*\* For the ER-AB, the start delay only affects the light switch operation.

\*\*\* For ER-AH humidity control in full load 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h and 100 m<sup>3</sup>/h can be set.

## 7 Technical data

### 7.1 Environmental conditions and operating limits

- Permissible maximum temperature of air medium + 40 °C.
- The air supply to the home must be set up so that virtually no air can flow into the living areas from the kitchen, bathroom or WC.
- A room from which the air is to be extracted must be fitted with a non-closable, free supply air cross section of at least 150 cm<sup>2</sup>, e.g. with Maico MLK door ventilation grille.

- ER EC units have resistance to interference in line with EN 55014-2 (depending on pulse type and an energy factor of 1000 to 4000 V). These values can be exceeded when operating with fluorescent tubes. In this case, additional interference suppression measures (L, C or RC modules, protection diodes, varistors) are required.

### 7.2 Regulations for operation with fireplaces

**Sufficient supply air intake** must be ensured during operation with **air-ventilated fireplaces**. The maximum permitted pressure difference per residential unit is 4 Pa.

The unit may only be installed in residential units with air-ventilated fireplaces under the following conditions:

- the evaluation criteria drawn up by the responsible, regional master chimney sweep are met;

- Parallel operation of air-ventilated fireplaces for liquid or gaseous fuels and air-extracting equipment can be prevented using safety devices or
- the extraction of exhaust gas from the air-ventilated fireplaces is monitored by special safety devices. The ventilation system or the fireplaces must be switched off if the equipment is triggered.

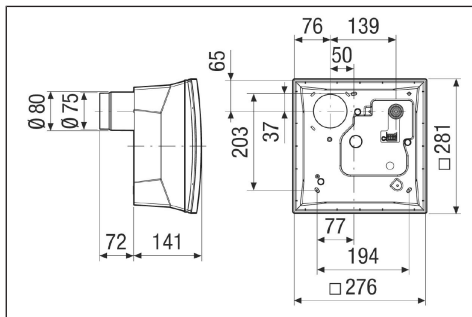
### 7.3 Technical data table

<b>Rated voltage</b>	230 V
<b>Power frequency</b>	50 Hz
<b>Power consumption</b>	
ER EC and ER-A	3/5 W*
ER-AK, ER-AH and ER-AB	2/2.5/3/5/17W*
<b>Degree of protection</b>	IP X5
<b>Mains cable</b> to ER EC, depending on switching variant for ER-A, ER-AK, ER-AH, ER-AB	3 x 1.5 mm <sup>2</sup> or 5 x 1.5 mm <sup>2</sup>
<b>Weight</b>	
ER GH housing	0.6 kg

\* Specification according to DIN 18017-3 with an equivalent absorption area of  $A_L = 10 \text{ m}^2$

For more technical data → rating plate.

For characteristic curves → [www.maico-ventilatoren.com](http://www.maico-ventilatoren.com)



### 7.4 Storage

Only store unit horizontally in a suitable, dry room. Ambient temperature – 10 °C to + 60 °C. Maico accepts no liability for corrosion damage caused by improper storage, e.g. storage in a damp environment.

## 8 Mounting preparations

**1** Suitable mounting material is to be provided by the customer.

### 8.1 Requirements in line with approval

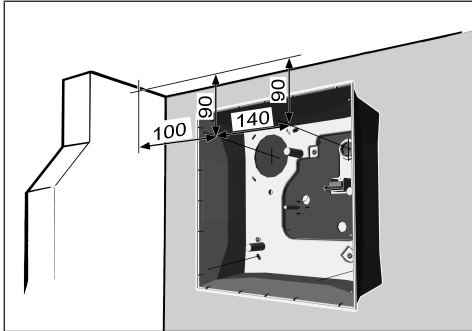
#### 8.1.1 Approval provisions

Approval provision	ER-APB	ER-AP
Number of units per floor, residential unit or fire zone	<b>Max. 3</b> fans or 3 connections	<b>Max. 2</b> fans or 2 connections
Shaft wall	min. 35 mm , board materials (F90)	min. 35 mm , board material, any
Connection ducts <b>inside</b> the shaft	<b>AFR 80 flexible aluminium duct</b> between the main duct in the shaft and unit, max. 2 m long (→ approval).	
Connection ducts <b>outside</b> the shaft	<b>Steel folded spiral-seams duct</b> , between the main duct in the shaft and the unit, max. 2 m long (→ approval).	<b>Steel folded spiral-seams duct or flexible aluminium duct</b> , between the main duct in the shaft and the unit, max. 2 m long (→ approval).
Duct elbows in the unit connection duct	Max. 90° bend, ascending	
Number of duct elbows permitted for wall installation	Max. 1 x 90°	Max. 2 x 90°
Number of duct elbows permitted for ceiling installation	Max. 2 x 90°	Max. 3 x 90°
Regulating equipment in the exhaust air duct	Not permitted	

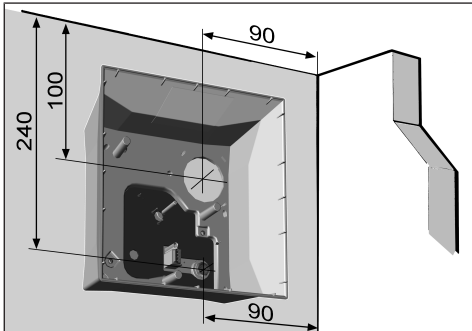
Approval provision	ER-APB	ER-AP
Wall/ceiling opening for DN 80 unit connection duct	Brickwork or concrete: 130 mm. Board materials (F90): Outer Ø of pipe	

## 8.2 Permissible installation positions for AP and APB fans

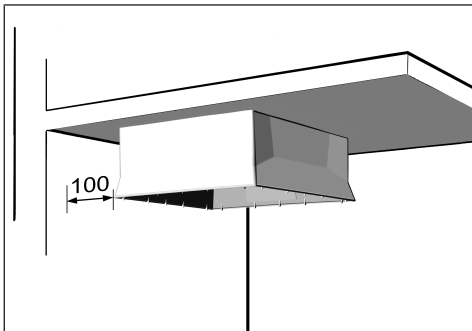
### Wall installation, top left corner of room



### Wall installation, top right corner of room



### Ceiling installation

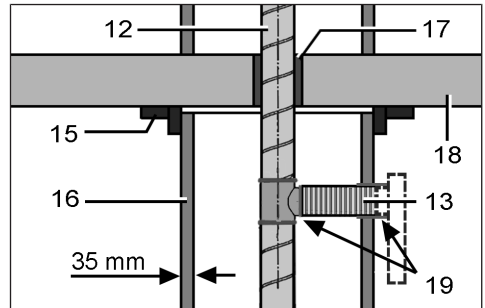


## 8.3 ER-APB: Preparations for installation with fire protection requirements

**NOTICE** Damage to unit, malfunctioning in the event of corrosion damage from mortar.

Wrap ventilation ducts, connected to the unit, with a suitable adhesive tape to protect against corrosion inside the brickwork, e.g. using cold-shrink tape.

### 8.3.1 Preparations for ER-APB wall installation (with fire protection)



1 Main duct (steel folded spiral-seams duct)	1 Connection duct:
2 Flexible aluminium duct	3 Flexible aluminium duct AFR 80
1 Spigot	1 Shaft wall
5	6
1 Ceiling compound	1 Floor ceiling
7	8
1 Sealing material, e.g. cold-shrink tape	
9	

1. Correctly attach main duct inside the shaft.
2. Apply ceiling compound. To do this, encase the ceiling and pour in the material from above.  
Make a wall or shaft opening for the flexible aluminium duct.

**⚠ DANGER** Danger to life due to fire transmission in case of faulty ceiling compound. It is essential that the remaining gap between the main duct and the wall or ceiling is completely sealed with non-flammable materials that are resistant to deformation. For example, use concrete or cement mortar.

3. Connect the flexible aluminium duct to the main duct and seal for ventilation.

## 8 Mounting preparations

- Cut flexible aluminium duct to length, observe a maximum duct length of 2 m.

**i** Dimension the length of the flexible aluminium duct so that it protrudes from the wall or shaft so that the ER connection socket can be attached later. Also attach a ventilation seal on the unit side.

- Ensure a suitable, level substructure.

**i** Compensate any unevenness in the wall or ceiling so that the housing can be installed without warping. Otherwise it may be that the fan insert can no longer be inserted into the housing or that the degree of protection indicated on the rating plate is no longer guaranteed.

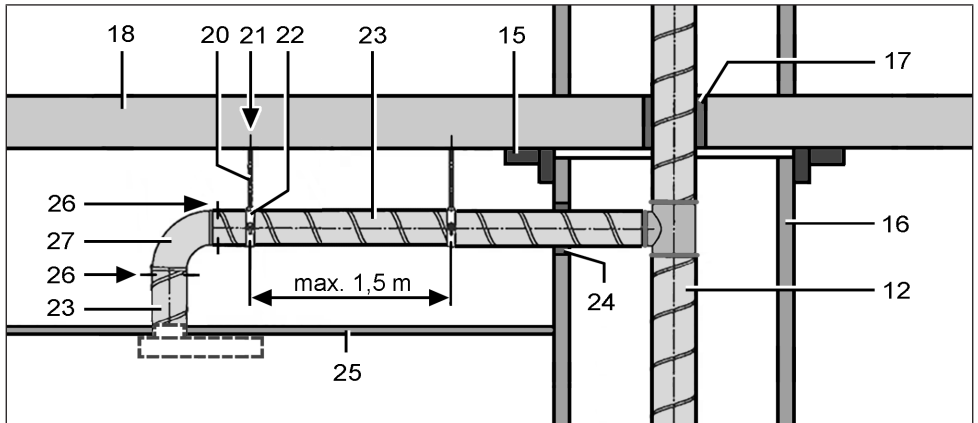
- Attach spigot made from shaft material F90 around the shaft.

**i** The spigot compensates for the length of the shaft walls in the event of a fire.

- Continue with the safety test of the APB shut-off device: Electrically connecting the unit [► 20].

### 8.3.2 Preparations for the ER-APB ceiling installation (with fire protection)

(Connection outside of the shaft)



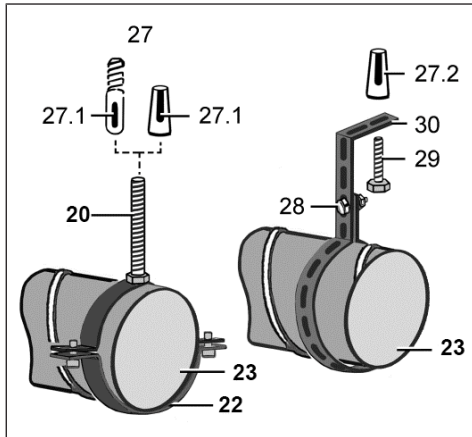
12	Main duct (steel folded spiral-seams duct)	15	Spigot
16	Shaft wall	17	Ceiling compound
18	Floor ceiling	20	Steel threaded rod / stair bolt
21	Duct fastener	22	Duct clamp / clamping band
23	Steel folded spiral-seams duct	24	Wall/board seal
25	Suspended ceiling	26	Steel screws or steel blind rivets (3 of each)

27	Steel duct bend	27.1	Anchor bolt / steel dowel
27.2	Metal expansion dowel	28	Retaining bolt with nut
29	Retaining bolt	30	Steel clamping band

**i** Keep a maximum distance of 1.5 m between the duct fastenings. It is essential to observe the installation instructions: Mounting preparations [► 10].



**Duct attachment with duct clamp, alternatively duct attachment with clamping band**



**Danger due to fire transmission**

**⚠ DANGER** Danger to life due to fire transmission if an incorrect connection duct is used on the APB housing when installed in the ceiling.

Always use steel folded spiral-seams ducts for the connection.

**⚠ DANGER** Danger to life due to fire transmission in case of faulty ceiling compound. It is essential that the remaining gap between the main duct and the wall or ceiling is completely sealed with non-flammable materials that are resistant to deformation. For example, use concrete or cement mortar.

**⚠ DANGER** Danger to life due to fire transmission if not flush with the brickwork or with panel building materials.

If used outside the shaft, seal the gap remaining between the connection duct and brickwork/wall boards with non-flammable materials resistant to deformation.

For example, use concrete or cement mortar for brickwork or special fire protection filler for wall boards.

**Procedure**

**i** It is essential to observe the installation instructions: Mounting preparations [▶ 10].

1. Correctly attach main duct inside the shaft.

2. Apply ceiling compound. To do this, encase the ceiling and pour in the material from above.
3. Make shaft opening for the DN 80 steel folded spiral-seams duct.
4. Fit duct attachments to the ceiling. Only use permitted, suitable mounting material.
5. Connect DN 80 steel folded spiral-seams duct to main duct and seal for ventilation, for example with cold-shrink tape.
6. Apply brickwork compound. Seal gap between brickwork and folded spiral-seams duct. The gap remaining must be fully sealed with non-flammable materials that are resistant to deformation. For example, use concrete or cement mortar or for wall boards, use fire protection filler.
7. Fasten duct bends with 3 steel screws or 3 steel blind rivets.
8. Make the DN 80 opening for the unit connection socket in the suspended ceiling (fire resistance is not required). It is essential to observe the permissible installation positions: Permissible installation positions for AP and APB fans [▶ 11].
9. Attach the suspended ceiling and provide a suitable, level substructure.

**i** It is imperative to compensate any unevenness in the wall or ceiling so that the lower part of the housing can be installed without warping. Otherwise it may be that the fan insert can no longer be inserted into the lower part of the housing or that the degree of protection indicated on the rating plate is no longer guaranteed.

10. Attach spigot made from shaft material F90 around the shaft.

**i** The spigot compensates for the length of the shaft walls in the event of a fire.

11. Continue with the safety-related test of the shut-off device: Electrically connecting the unit [▶ 20].

### 8.4 ER-AP: Preparations for wall, shaft or ceiling installation without fire protection

1. Carry out installation preparations as described: Requirements in line with approval [► 10]. However, comply with the specifications suitable for the exhaust air system in accordance with the applicable fire protection regulations.
2. Permissible connection ducts for connection without fire protection requirements:
  - Shaft/wall installation: Flexible aluminium duct with DN 80 connection diameter, max. 2 m long, two 90° elbows.
  - Ceiling installation (connection outside of the shaft): Steel folded spiral-seams duct and/or flexible aluminium duct with DN 80 connection diameter, max. 2 m long, two 90° elbows.
3. Use suitable mounting material for installation without fire protection.

### 8.5 Preparations for the electrical connection

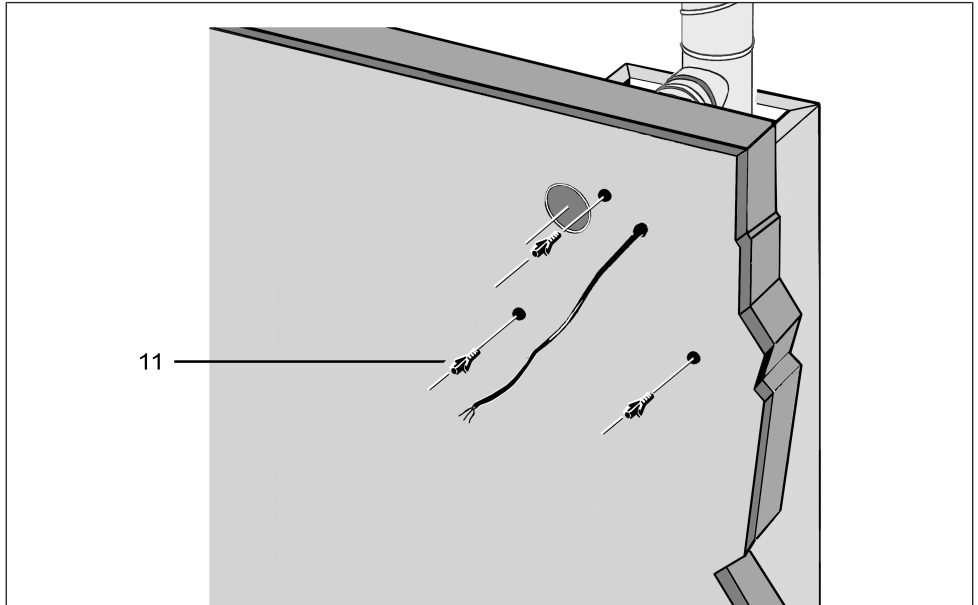
**⚠ DANGER** Danger to life from electric shock.

Before laying the power cable, switch off all supply circuits. Switch off mains fuse, secure against being accidentally switched back on and position a visible warning sign.

**i** Always note the relevant specifications for electrical installations and when fitting equipment. In Germany, observe DIN VDE 0100 and the corresponding parts in particular.

1. Switch off mains fuse, secure against being accidentally switched back on and position a visible warning sign.
2. Lay power cable to the installation location.
3. Continue with the safety test of the release device: Electrically connecting the unit [► 20].

### 8.6 Preparations for wall installation



1	Dowel for drill holes	
1		

#### Mounting information

- Always use correct duct material for the AP housing.

## 8 Mounting preparations

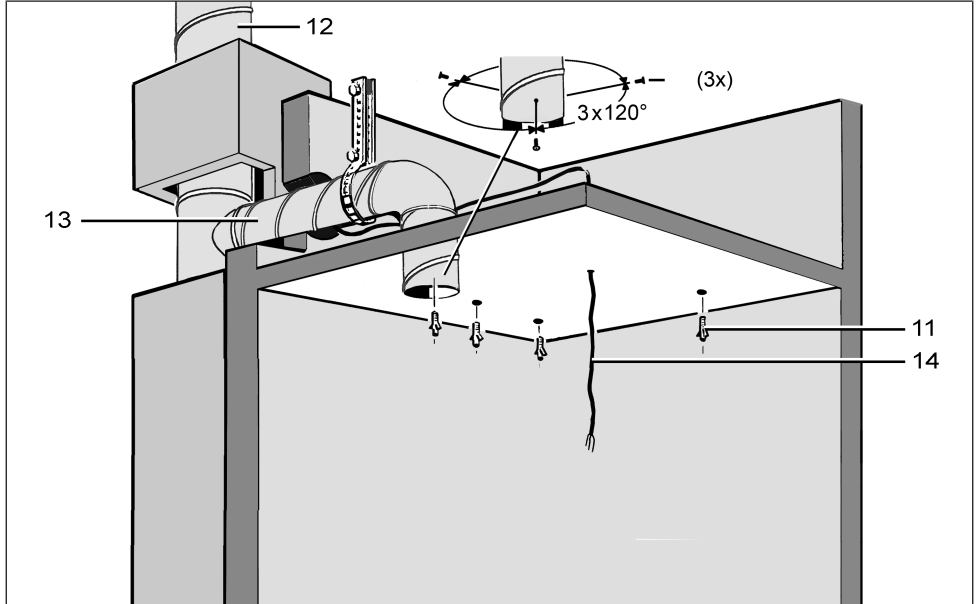
- For fire protection systems, the gap remaining between the connection duct and brickwork/wall boards/wall/ceiling must be fully sealed with non-flammable materials that are resistant to deformation (e.g. concrete, cement mortar, fire protection filler).

### **NOTICE** Damage to unit, malfunctioning in the event of corrosion damage from mortar.

Wrap ventilation ducts, connected to the unit, with a suitable adhesive tape to protect against corrosion inside the brickwork, e.g. using cold-shrink tape.

### 8.7 Preparation for ceiling installation (with fire protection)

(Connection outside of the shaft)



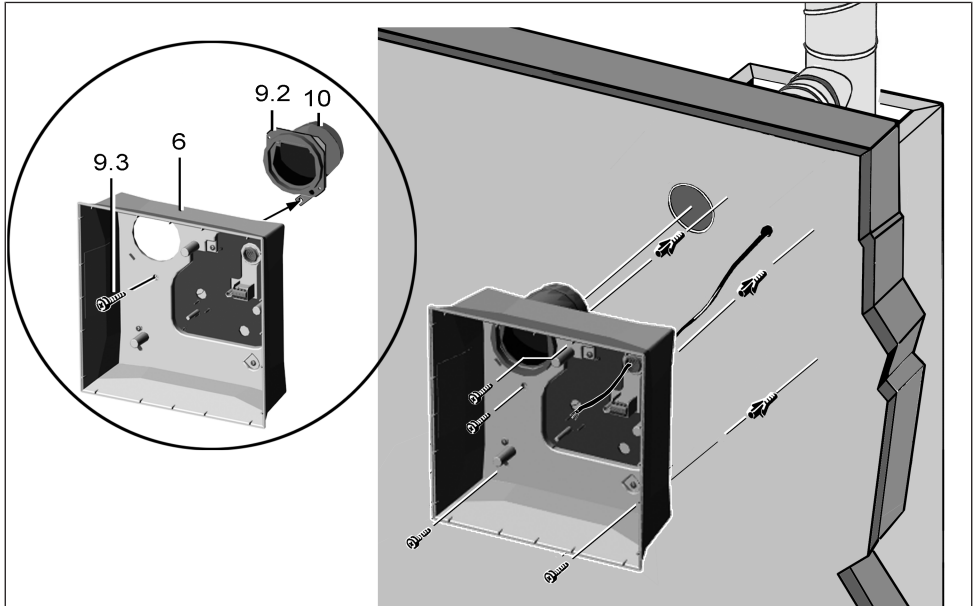
1	Dowel for drill holes	1	Main duct (steel folded spiral-seams duct)	3.	For fire protection systems, use ceiling compound. To do this, encase the ceiling and pour in the material from above.
1		2		4.	Connect connection duct, suitable for the housing, to the main duct and seal for ventilation.
1	Connection duct: steel folded spiral-seams duct. (For ceiling barrier system or ventilation ducts without fire protection: flexible aluminium duct)	1	Power cable	5.	Cut connection duct to length, note a maximum duct length of 2 m.
3		4		<b>i</b>	<b>Cut connection duct to a length which allows it to be fitted on the exhaust socket and also sealed for ventilation at the unit end.</b>

#### Preparing the shaft

- Produce opening in shaft or alternatively produce a wall facing. Ensure a suitable, flat surface for the housing so that the fan insert can be safely inserted in the housing later on.
- Correctly attach main duct inside the shaft.
- Lay suction duct and seal gap remaining correctly as described in previous mounting instructions.
- Lay power cable in shaft and allow to protrude by around 30 cm above the shaft opening.

8. Lay power cable: Electrically connecting the unit [► 20].

### 8.8 ER-APB shut-off device, ER-AP shutter



6	Housing	9.	Metal backflow preventer
9.	Fixing screw for 3 tab of the metal shut-off shutter	10	Exhaust socket DN 75/DN 80

#### 8.8.1 ER-APB: Safety instructions for installation of the fire protection shut-off device

It is essential to observe the permissible installation positions: Permissible installation positions for AP and APB fans [► 11].

**⚠ DANGER Danger to life due to fire transmission if the tab of the metal backflow preventer is incorrectly screwed on.**

It is essential to fasten the metal backflow preventer and tab to the wall/ceiling with a suitable screw and metal dowel.

Fixing screw is to be provided by the customer.

- ER-APB with maintenance-free fire protection shut-off device against fire transmission.

With metal exhaust socket and metal shut-off shutter and soldered strut with soldered strut locking device. This is approved for a PAM-GLOBAL RML cast iron ventilation duct system or a system with a fire-proof shaft.

**i Also pay attention to the safety instructions:** ER-APB: Safety instructions for installation of the fire protection shut-off device [► 16].

- ER-AP plastic shutter with plastic exhaust sockets and plastic backflow preventer. This is approved for use with a ceiling barrier system or an air extraction system without fire protection.

**⚠ DANGER For ER-APB connection outside the shaft: Danger to life due to fire transmission if the metal exhaust socket is incorrectly connected to the connection duct.**

Connection according to: Preparations for the ER-APB ceiling installation (with fire protection)

[▶ 12].

3 steel blind rivets are prescribed for the connection with the connection socket. These must not impair the shutter function.

Before commissioning, ensure that the shut-off shutter moves with ease.

**NOTICE The metal shut-off device is permanently closed if there is no soldered strut.**

Check that the soldered strut is in the correct place before installation.

**NOTICE Unpleasant smells from the main duct. Shut-off device does not close tightly in cases of improper installation.**

Before mounting, check the correct installation position and check that the shut-off shutter functions.

### 8.8.2 Safety instructions for the installation of the plastic shutter

#### Preparing the shaft and suspended ceiling

1. Make an opening in the suspended ceiling.
2. Make an opening in the shaft for DN 75 or DN 80 connection duct.
3. Correctly attach main duct inside the shaft.
4. For fire protection systems, use ceiling compound. To do this, encase the ceiling and pour in the material from above.
5. Fit duct attachments to the ceiling (Preparations for the ER-APB ceiling installation (with fire protection) [▶ 13]). Only use permitted mounting material.

**⚠ DANGER Risk of incorrect installation if non-permitted mounting material is used.** Only secure connection duct to ceiling with permitted mounting material (duct clamp or clamping band).

6. Connect permitted connection duct to main duct and seal for ventilation, for example with cold-shrink tape.

7. Apply wall/board compound. Seal gap between brickwork and folded spiral-seams duct. The gap remaining must be fully sealed with non-flammable materials that are resistant to deformation. For example, use concrete or cement mortar or for wall boards, use fire protection filler.

8. Fit suspended ceiling. Use ER GH housings to ensure a suitable, flat surface so that the fan insert can be safely inserted in the housing later on.

9. Lay power cable: ER-AP: Preparations for wall, shaft or ceiling installation without fire protection [▶ 14].

## 8.9 Preparing the shutter

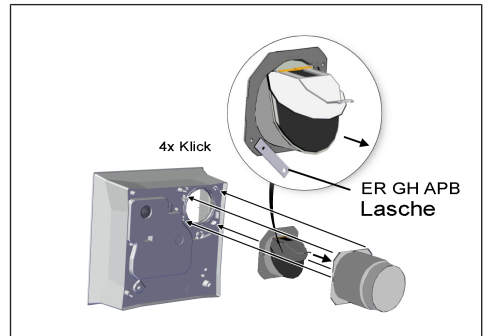
**NOTICE Odours may escape from the ventilation channel.**

If the installation position is wrong, the plastic shutter will not close leak-tight.

Insert shutter at the top/to the right/to the left/to rear in the exhaust socket of the housing to fit the installation position. Ensure that the shutter closes entirely leak-tight.

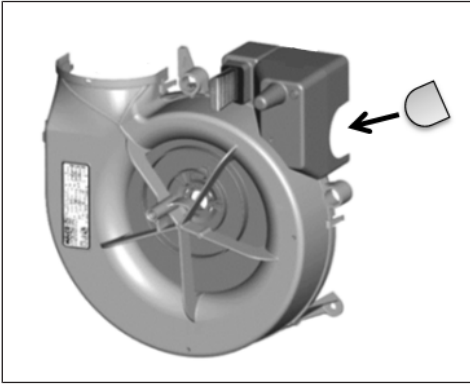
1. Before fitting housing, it is essential that the position of the shutter is checked and its function ensured.

**i Note also:** ER-APB shut-off device, ER-AP shutter [▶ 16] and ER-APB: Safety instructions for installation of the fire protection shut-off device [▶ 16].



## 8.10 Attaching blind plug

1. Attach the supplied blind plug to the fan insert.

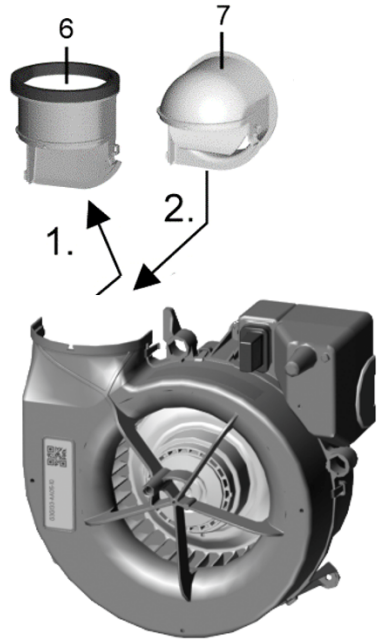


### 8.11 Conversion of air blow-out adapter for using the AP housing

**NOTICE** In case of incorrect installation of the air blow-out adapter, the function of the unit is impaired.

Make sure that the adapter is tightly fitted to the housing.

1. Carefully remove the through-the-wall air blow-out adapter from the 3 locking hooks on the sides.
2. Push the supplied angled air blow-out adapter onto the fan insert until it is engaged.
3. Check for correct installation of the blow-out adapter.



## 9 Housing installation

### 9.1 Installation of ER GH housing

The following are not permitted:

- Use of an ER EC fan in the bathroom or toilet room if other rooms in the apartment are to be vented with the same unit at the same time.

### 9.2 Mounting information

(also Requirements in line with approval [► 10])

#### **AP housing without fire protection device.**

Installation is permissible in the following positions:

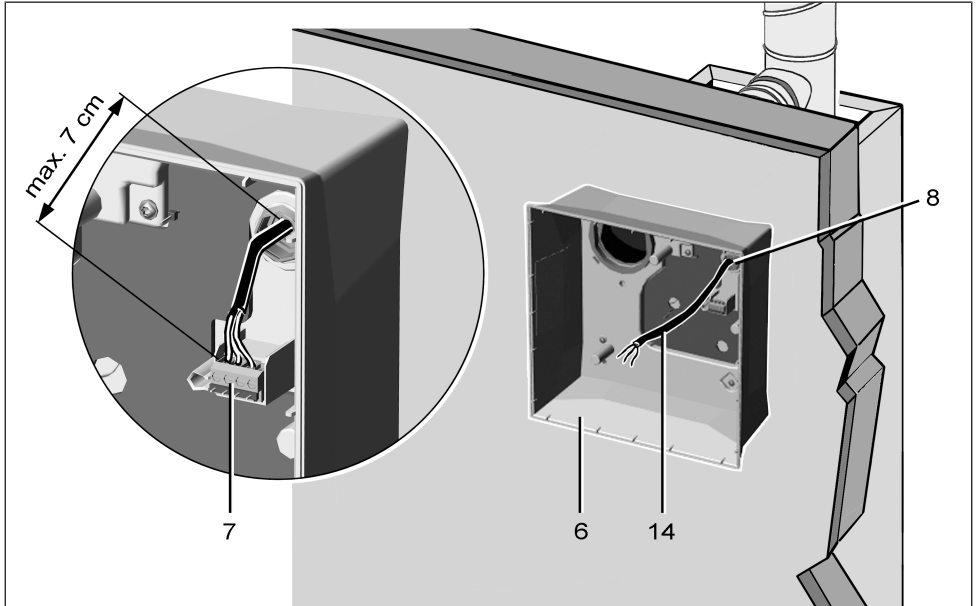
- **Wall installation** With air outlet direction (exhaust socket) to the rear. Mounting directly on the wall.
- **Mounting on ceiling and non-suspended ceiling:** Mounting directly on the ceiling.

Suitable mounting material is to be provided by the customer.

**The plastic shutter should be prepared so that it closes fully sealed in the installation position:** Preparing the shutter [► 17].

**The housing must be inserted without any distortion.** Failure to do so will mean that the fan insert cannot engage correctly in the housing and the degree of protection stated on the rating plate is no longer ensured.

## 10 Electrical connection



6	Housing	7	Terminal block
8	Stepped grommet	1	Power cable
		4	

**⚠ DANGER Danger from electric shock/The unit will be damaged if installed incorrectly with too long a power cable.**

If the cable feed is too long inside the housing, the fan insert cannot be installed correctly. The power cable may be damaged when inserting the fan unit.

**Area for mains connection labelled: Lay wires according to the contour.** Note that the maximum spacing to the connection terminal box is 7 cm. Do not cut the power cable inside the housing too short.

**NOTICE Damage to the unit if connected incorrectly.**

For example, if an electric load is connected to terminal 4 or if connected to 2 phases. Connect the unit according to the wiring diagrams: Wiring diagrams. Do not connect additional consumers to terminal 4.

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

Cut off and insulate PE conductor and individual cable cores that are not required!

### Notes

- Make electrical connections when installing the housing.
- Observe permitted duct cross-section of max. 1.5 mm<sup>2</sup>.
- Only connect the unit to a permanent electrical installation.
- The degree of protection is only guaranteed:
  - for intended installation;

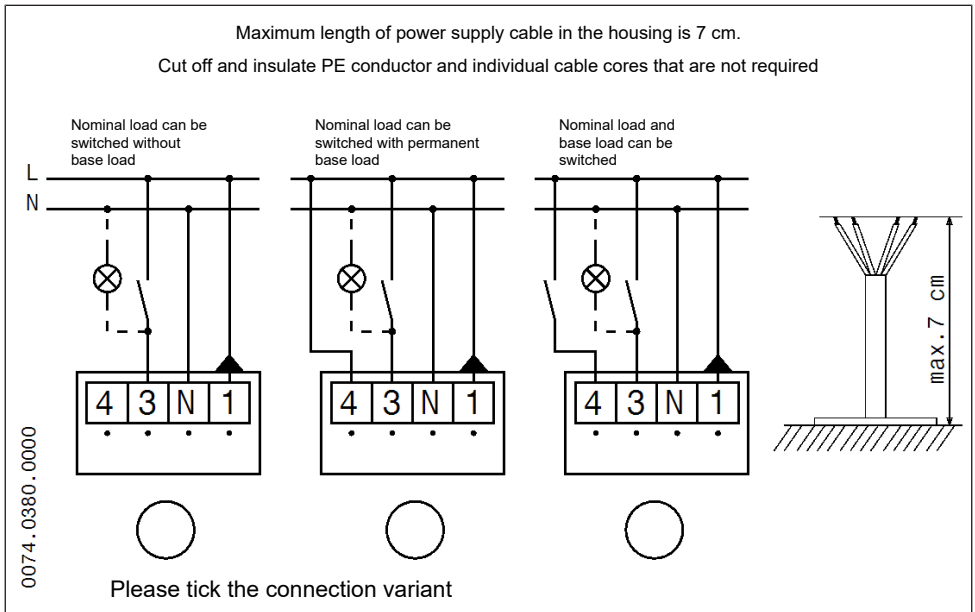
## 11 Final mounting

- if the power cable is properly inserted through the stepped grommet;
- with the fan insert correctly engaged in the surface-mounted housing;
- with the cover screwed, closed and locked in place.

### 10.1 Electrically connecting the unit

1. 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.
2. Cut off and insulate PE conductor and individual cable cores that are not required!
3. Remove power cable's sheathing and cut to length: Electrical connection [► 19].
4. Wire power cable to the terminal box according to the wiring diagram: Wiring diagrams. Terminal 1 is marked with a triangle.
5. Mark the fan type and connection type on the wiring diagram in the AP/APB housing.
6. This prevents mistakes during final installation, for example, if different fan inserts are fitted in the system.

**Recommendation:** Keep these mounting instructions until the final assembly in the flush-mounted housing.



## 11 Final mounting

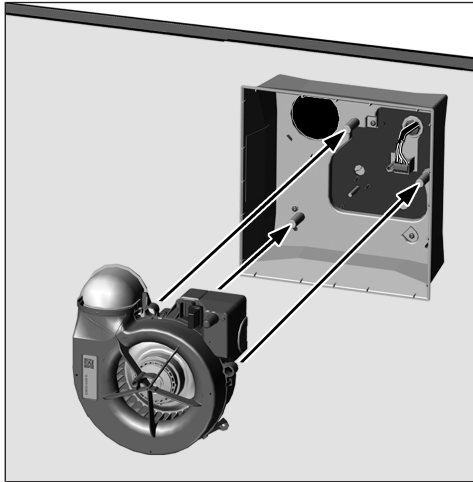
### NOTICE Malfunction in case of incorrect installation.

For installation conditions and detailed information on the final assembly of the fan insert and cover → Observe **Instructions for ER covers**.

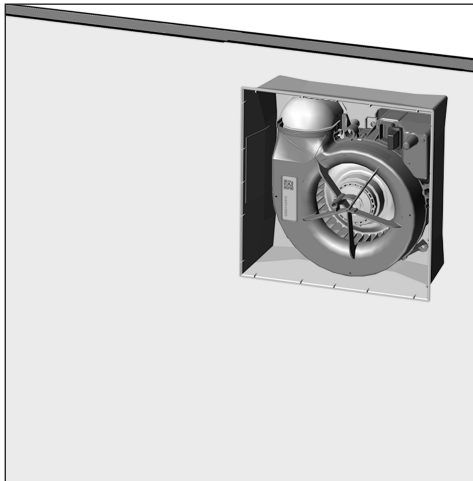
### 11.1 Attaching fan insert

1. Plug the fan insert directly into the 3 studs in the interior of the surface-mounted housing.





2. Fasten with the 3 supplied screws (4x10). Do not over-tighten screws.
3. Check for firm seating of the fan insert.

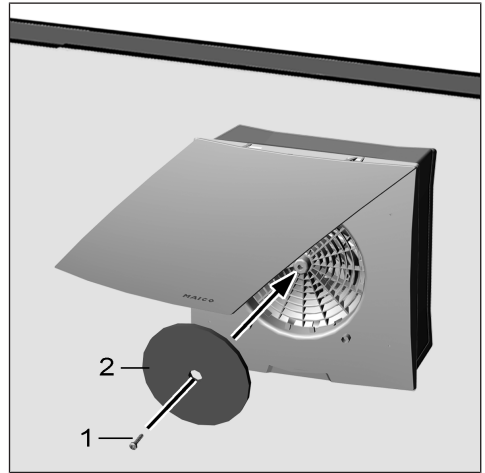


### 11.2 Attaching cover ER-A, ER-AK, ER-AH or ER-AB

1. Screw cover to the fan insert with the central screw.

**i** The covers ER-AK, ER-AH and ER-AB are electrically connected automatically when installed. The setting values can be changed on these covers.

2. Insert the air filter and fold down the upper part of the cover (upper part must audibly engage).
3. Run function test: Test all unit functions (over-run time, interval, humidity control etc.).



### 11.3 Key lock

If a key lock is desired, activate the key lock on the ER-AK, ER-AH or ER-AB cover (it is deactivated in the factory).

1. To do so, push button + and - at the same time for **5 seconds**.

⇒ The 5 LEDs flash briefly 3x.

To cancel the key lock, repeat the procedure.

## 12 Operating the unit

**i** If the unit is switched on and off manually, function is not always ensured in accordance with DIN 18017-3.

**ER EC fans run at 30 m<sup>3</sup>/h in base load operation** (factory setting).

A light switch or separate switch can be used to switch to **full load operation with 60 m<sup>3</sup>/h**.

The unit control is located in the cover: **ER-AH, ER-AK, ER-AB** have automatic functions with unit parameters that can be set: Covers: Functions [► 8].

- ER-A: Standard model
- ER-AK: Comfort model
- ER-AH: Model with humidity control, barrier-free
- ER-AB: Model with motion sensor, barrier-free

For full load operation, a **start delay** of 60 seconds and an **overrun time** of 15 minutes are specified **at the factory**.

**i** **Ensure sufficient supply air during operation.**

## 13 Spare parts

**i** **Spare parts may only be sourced from and fitted by a specialist installer.**

Designation	Article no.
Exhaust socket with backflow preventer ABSM RK ER-UPD/-UPB	E093.0977.0001
Exhaust socket made of plastic ABSK ER-UPG/ER-AP	E059.0884.0001
Shutter support with backflow preventer KA RK K	E093.0608.0001
Air outlet element AEH AP ER EC	E093.1627.0000
Terminal block KL ER	E157.0326.0000

### In case of questions, please contact:

Maico Elektroapparate-Fabrik GmbH  
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Fax +49 7720 694 175  
E-mail: ersatzteilservice@maico.de

**i** **Spare parts** can be ordered at [www.shop.maico-ventilatoren.com](http://www.shop.maico-ventilatoren.com).



## 14 System and accessory components

### 14.1 System components

#### ER EC fan insert

Article no. **0084.0360**

- Fan insert for installation in flush-mounted/surface-mounted housing. Air volume 30 m<sup>3</sup>/h, 60 m<sup>3</sup>/h. In combination with an intelligent cover for the base load, also possible with 20 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h, or 100 m<sup>3</sup>/h and the full load 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 100 m<sup>3</sup>/h.
- Air outlet adapter with air outlet facing upwards (factory setting).
- Air outlet adapter with air outlet facing the rear (can be converted without tools).

#### ER-A cover

Article no. **0084.0361**

- Standard model
- Air volume 30 m<sup>3</sup>/h, 60 m<sup>3</sup>/h
- Installation and operating instructions for **ER EC-Abdeckungen**

#### ER-AH cover

Article no. **0084.0363**

- Model with humidity control and intelligent time module
- Air volume 30 m<sup>3</sup>/h, 60 m<sup>3</sup>/h according to factory setting. Further volumetric flows that can be set: Base load: 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, nominal load: 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h, 100 m<sup>3</sup>/h
- Installation and operating instructions for **ER EC-Abdeckungen**

#### ER-AK cover

Article no. 0084.0362

- Comfort version with intelligent time module
- Air volume 30 m<sup>3</sup>/h, 60 m<sup>3</sup>/h according to factory setting. Further volumetric flows that can be set: base load: 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h or 100 m<sup>3</sup>/h, full load: 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h or 100 m<sup>3</sup>/h
- Installation and operating instructions for ER covers

#### ER-AB cover

Article no. 0084.0364

- Model with motion detector and intelligent time module
- Air volume 30 m<sup>3</sup>/h, 60 m<sup>3</sup>/h according to factory setting. Further volumetric flows that can be set: base load: 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h, 100 m<sup>3</sup>/h, full load: 20 m<sup>3</sup>/h, 30 m<sup>3</sup>/h, 40 m<sup>3</sup>/h, 60 m<sup>3</sup>/h, 100 m<sup>3</sup>/h
- Installation and operating instructions for ER covers

## Air filter

### ZF EC+ replacement air filter for ER-A

Article no. **0093.0610**

- 5x **ZF EC+** replacement air filters (filter class G2)
- 5x filter change indicator (TimeStrip)

### Large pack of ZF EC+ replacement air filters for ER-A

Article no. 0093.0611

- 100x ZF EC+ replacement air filters (filter class G2)
- 100x filter change indicator (TimeStrip)

### ZF EC replacement air filter for ER-AH ER-AK ER-AB

Article no. **0093.0758**

- 5x **ZF EC** replacement air filters (filter class G2)

### Large pack of ZF EC replacement air filters for ER-AK, ER-AH and ER-AB

Article no. 0093.0759

- 100x ZF EC replacement air filters (filter class G2)

### ZRF replacement air filter for ER-ZR second room connection set

Article no. 0093.0923

- 5x replacement air filters for internal grille ER-ZR second room extraction (filter class G2)

### ZF ECD replacement permanent filter for ER-AK, ER-AH and ER-AB

Article no. 0093.1561

- 2x replacement permanent filters for covers of the ER EC fan unit (filter class G2)

### ZF ECD+ replacement permanent filter for ER-A

Article no. 0093.1562

- 2x replacement permanent filters for covers of ER EC fan unit (filter class G2)
- 10x filter change indicator (TimeStrip)

## 15 Removal

**i** **Dismantling may only be undertaken by a qualified electrician:** Specialist installer qualifications [► 5].

1. Before accessing the connection terminals, shut down all supply circuits (switch off mains fuse), secure against being accidentally switched back on and position a visible warning sign.
2. Remove fan insert.
3. Remove all cables.
4. Remove surface-mounted housing from the wall.

## 16 Environmentally responsible disposal

**i** **Old devices and electronic components may only be dismantled by specialists with electrical training.** Proper disposal avoids detrimental impact on people and the environment and allows valuable raw materials to be reused with the least amount of environmental impact.



### Do not dispose of the following components in household waste!

Old devices, wearing parts (e.g. air filter), defective components, electrical and electronic scrap, environmentally hazardous liquids/oils, etc. Dispose of them in an environmentally friendly manner and recycle them at the appropriate collection points (→ Waste Management Act).

1. Separate the components according to material groups.
2. Dispose of packaging materials (cardboard, filling materials, plastics) via appropriate recycling systems or recycling centres.
3. Observe the respective country-specific and local regulations.

## Wiring diagrams

**i** **Tolerances for the stated times = nominal value ± 5 %**

Values that can be set with optional cover with integrated electronics:

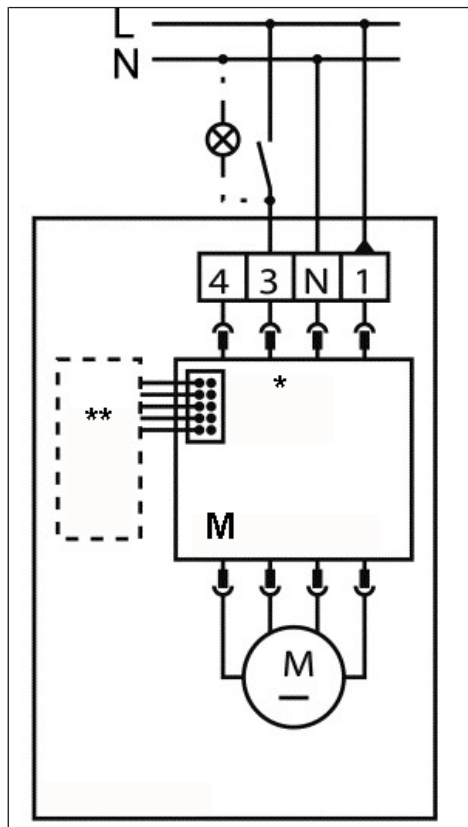
- ER-AK, ER-AH, ER-AB: Start delay and overrun time
- ER-AH: Humidity control
- ER-AB: Motion detector

### For ER-A cover:

- Start delay of 60 seconds
- Overrun time of 15 minutes.

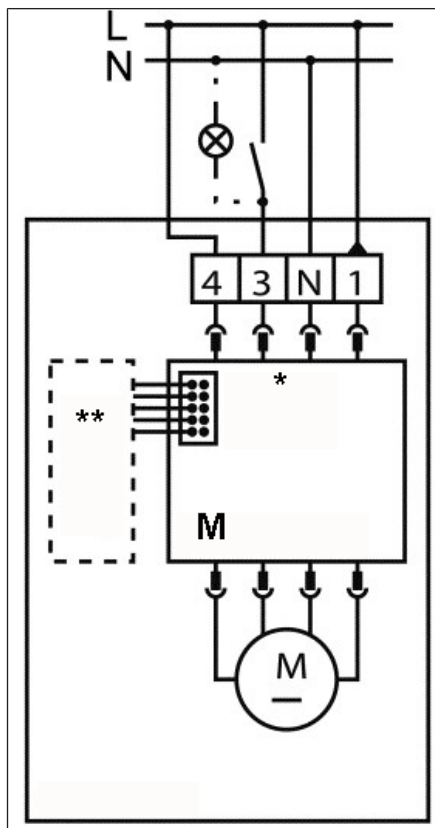
## Base load/full load connection variant

Nominal load can be switched



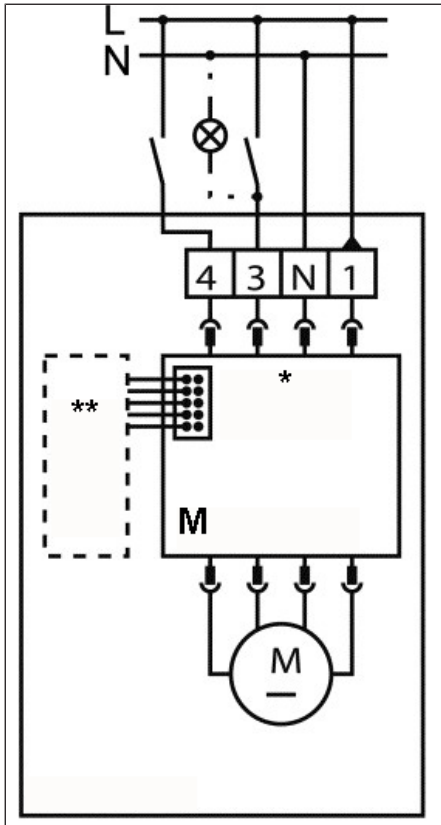
*	ER-A Standard cover
**	ER-AH Humidity covers (optional)
M	Motor control

Nominal load can be switched with permanent base load



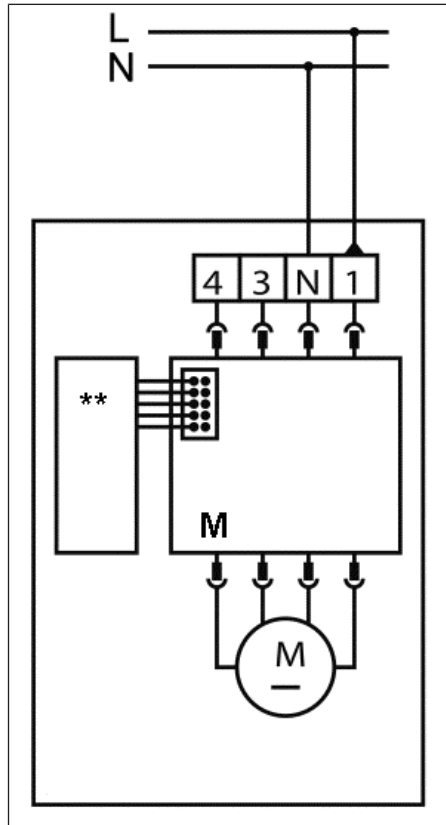
*	ER-A Standard cover
**	ER-AH Humidity covers (optional)
M	Motor control

Base and nominal load can be switched



*	ER-A Standard cover
**	ER-AH Humidity covers (optional)
M	Motor control

Humidity connection variant



**	ER-AH Humidity covers (optional)
M	Motor control







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