

**UK**

# Mounting and operating instructions

## Recess-mounted exhaust air system according to DIN 18017-3



ER-UP/G

ER-UPD

ER-UPB

ER 60

ER 100

Centro-M

Centro-E



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## Scope of delivery

### Depending on order, comprising:

- **Shell kit:** ER recessed-mounted housing
- **Final assembly set:** Fan insert
- **Other accessories**, e.g. ER-AS for WC seat ventilation, spacer, wall and cover frames, expanded rubber fitting etc.



When unpacking the unit, check to make sure that the delivery is complete. Please contact the dealer if any accessories are missing or if there has been any damage in transit.

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## ER recess-mounted housing (shell)

### Recess-mounted housing ER-UP/G

article no. 0093.0995

- Recess-mounted plastic housing with exhaust socket Ø 75/Ø 80 (no fire protection)
- Plastic shutter
- Plaster protective cover
- Mounting and operating instructions

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### Recess-mounted housing ER-UPD

article no. 0093.0972

- Recess-mounted plastic housing with metal exhaust socket Ø 75/Ø 80
- Fire protection shut-off device with air-stream-operated metal backflow preventer to prevent fire spreading (K90-18017)
- Plaster protective cover
- Mounting and operating instructions

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### Recess-mounted housing ER-UPB

article no. ER-UPB: 0093.0968

### Recess-mounted housing ER-UPB/.. with second room connection

**on right:** article no. ER-UPB/R 0093.0969

**on left:** article no. ER-UPB/L 0093.0970

**at bottom:** article no. ER-UPB/U 0093.0971

- Recess-mounted plastic housing with fire protective cover and metal exhaust socket Ø 75/Ø 80
- Fire protection shut-off device with air-stream-operated metal backflow preventer to prevent fire spreading (K90-18017)
- Plaster protective cover
- Mounting and operating instructions

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### Mounting support UPM 60/100

article no. 0018.0010

- For securing the recessed-mounted housing

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## Fan inserts (final assembly)

### Fan insert ER 60 .. / ER 100 ..

article no. → Internet or catalogue.

- Fan inserts with different control circuit boards, depending on application. Can be used in all recess-mounted housings ER-UP/G, ER-UPD and ER-UPB (incl. ER-UPB/R, ER-UPB/L and ER-UPB/U)
- Internal cover with exhaust air filter

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### Exhaust air element Centro-M / Centro-E

article no. → Internet or catalogue.

- Can be used in all recess-mounted housings ER-UP/G, ER-UPD and ER-UPB (incl. ER-UPB/R, ER-UPB/L and ER-UPB/U)
- Internal cover with exhaust air filter

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## Additional accessories

### Second room connection set ER-ZR

article no. 0093.1025

- Comprising protective grille, filter mat adapter, plastic exhaust socket and regulating plate

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### Extraction socket ER-AS (Ø 70)

article no. 0093.0928

- For connecting a WC seat ventilation duct to ER-UP/G and ER-UPD housing

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### Spacing frame DR 60/100

article no. 0059.0928

- For compensating for projection of max. 2 cm

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### Wall frame ER-MR, article no. 0018.0024

- For housings that have been plastered too deeply

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### Cover frame ER-AR, article no. 0059.0899

- Prevents joints between housing/wall

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### Expanded rubber fitting ER-MO

article no. 0092.0361

- For acoustic insulation of recess-mounted housing

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### Filter mats ZF/ZRF

ZF 60/100: article no. 0093.0680

ZRF: article no. 0093.0923

- ZF 60/100: Replacement air filter for fan insert ER 60/ER 100
- ZRF: Replacement air filter for second room connection set ER-ZR



## Equipment overview (Figure 1)

### ER-UP/G with plastic shutter without fire protection equipment

- 1 Plastic backflow preventer (Fig. of installation position with air outlet to the right)
- 2 Plastic exhaust socket

### ER-UPD with fire protection shut-off device and

### ER-UPB with fire protection shut-off device and fire protection cover

- 3 Metal shut-off shutter with trigger equipment
- 4 Soldered strut
- 5 Metal exhaust socket
- 5.1 Metal connection socket Ø 75/80 for second room extraction ER-UPB

### ER-ZR second room connection set

- 6 Protective grille
- 7 Filter mat, filter class G2
- 8 Adaptor
- 9 Suction duct, ZR connection (not included in ER-ZR set)
- 10 Plastic installation socket for second room extraction

### ER 60/100 fan insert

- 11 Fan insert
- 12 Electronic circuit boards
- 13 Housing floor seal
- 14 Sensor (H or F model)
- 15 Cover with central screw
- 16 Regulating plate for second room connection
- 17 Filter mat, filter class G2

P production date

S1 wiring diagram

S2 rating plate

S3 TÜV sticker

### ER-AS (special accessories)

Extraction socket for WC seat ventilation Ø 70

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## 1. General notes



Please read these instructions carefully. Follow the instructions. Pass these instructions onto the owner. Keep these instructions somewhere safe.

The warnings provided, indicate hazardous situations which, if not avoided will result in death or serious injury in the case of **DANGER** or could result in death or serious injury in the case of **WARNING**.

**CAUTION** indicates a hazard situation which could result in minor injuries if not avoided.

**NOTICE** indicates potential damage to the product or its surroundings.

## 2. Specialist installer qualification

Mounting may only be carried out by **specialists** who have the necessary knowledge and experience in **ventilation engineering**. The unit must be connected in accordance with the "General building approval".

Only a **trained electrician** is permitted to work on the electrics. You are deemed a trained 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 attached wiring diagram 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

These fans are used to extract air from interior bathrooms and toilet rooms, storage rooms and kitchens with an outside window.

If operated other than stated in DIN 18017-3, the fans may also be used as standalone units (fitted on the wall or ceiling) or to extract air from other rooms (interior kitchen etc.).

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

## 4. Non-intended use

These fans must not be used in the following situations **under any circumstances**. Read all the safety instructions.



### DANGER



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

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



**Explosion hazard.** Explosive gases and dusts may ignite and cause serious explosions or fire.

→ Never use the fan in an explosive atmosphere.



**Explosion hazard.** Explosive substances in lab extraction units may ignite and cause serious explosions or fire. Aggressive substances may damage the fan.

→ Never use fan in combination with a lab extraction unit.



### 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 fan.

→ Never use fan to convey chemicals or aggressive gases/vapours.

### NOTICE: Damage to the unit

- During the build phase, damage to unit caused by soiling of the fan and air channels.  
→ Fan operation is not permitted during the build phase.
- Grease and oil vapours from range hoods may soil the fan and air channels and reduce efficiency.  
→ Never use fan to convey greasy air.
- Damage to the unit when continuously conveying steam-saturated air.  
→ Never use fan to convey steam-saturated air.
- Damage to the unit due to **imbalance of the impeller** when conveying solid particles.  
→ Never use fan to convey solid particles that could stick to the fan.
- Damage to unit in the event of **moisture** ingress. Fan with IP X5 degree of protection.  
→ Never use fan outdoors.

## 5. Safety instructions



### WARNING

**Risks for people (including children) with reduced physical, sensory or mental capabilities or a lack of knowledge.**

→ Fan may only be installed, **commissioned**, cleaned and maintained by people who can safely recognise and avoid the risks associated with this work.



### DANGER

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

Heavily contaminated or damp air filters may collect substances hazardous to health (mould, germs etc.). This may also happen if the fan is not used for an extended period. If the air filter is missing, the fan and air channels become soiled.

→ Never operate the fan without air filters.

→ Only use original filters.

→ Regularly (every 3 to 6 months) change the air filter, depending on the degree of soiling.

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



### CAUTION

**Risk to health if fan is not correctly cleaned.**

→ Clean the fan regularly, at least every 2 years. This is the only way of ensuring that the unit is running hygienically.

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

→ Use appropriate, certified 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****Exercise caution when handling packaging materials.**

→ Store packaging material out of the reach of children.

**⚠ DANGER****Danger of injury from damaged fan.**

→ Switch the fans off immediately if you discover damage or faults that could endanger persons or property.

→ Prevent the unit from being switched back on until it has been fully repaired.

**⚠ CAUTION**

**Intended operation not ensured if installed incorrectly.** A fan not installed correctly may result in operation not as intended.

→ Only install fan in accordance with the planning documents.

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

**⚠ DANGER**

**Risks 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 professional chimney sweep.

**⚠ DANGER**

**Danger from operating with the fan 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 positioned.

→ Only operate the fan when it is completely installed.

→ Do not cover the fan.

**⚠ DANGER**

**Risk of injury and health risk when using accessory elements which have not been approved.** The fan is

tested and approved with original accessory components (e.g. air filters).

→ The unit may only be operated with original components.

→ Modifications and alterations to units are not permitted and release the manufacturer from any guarantee obligations and liability, e.g. if the unit is drilled at a point which is not permitted.

### **DANGER**

#### **Danger of electric shock.**

→ Before removing the housing cover and before installing the electrics, switch off all supply circuits as well as the mains fuse and secure them against being accidentally switched back on again. Attach a warning sign in a clearly visible place.

### **DANGER**

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

→ Before removing the upper part of the housing/fan insert and before installing the electrics, switch off all supply circuits as well as the mains fuse and secure them 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 this is particularly VDE 0100, with the corresponding parts.

→ 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, 3x 1.5 mm<sup>2</sup> or 5x 1.5 mm<sup>2</sup>.

→ The units may only be operated using the voltage and frequency shown on the rating plate.

→ Unit may also be energized even when at a standstill and may be switched on automatically by sensors (time delay, humidity etc.) or by the thermal protection in the motor winding. Maintenance and fault finding only permissible when carried out by trained specialists.

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

### **DANGER** **of fire spreading**

#### **In the event of a fire, there is a risk of the fire spreading**

- if an incorrect connection duct is connected to the ER housing. Always use the right duct material for the ER housing → chapter 11.1.
- if incorrect ceiling compound is used for exhaust air systems with an intermediate ceiling (aeroduct, PAM-GLOBAL RML or ceiling penetration). 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.
- if the seal with the brickwork or wall boards is incorrect. If used outside the shaft, ensure that the gap remaining between the connection duct and brickwork/wall boards is fully sealed with non-flammable materials resistant to deformation, such as concrete, cement mortar or plaster and for the wall boards, special fire protection filler.
- if the metal exhaust socket [5] is incorrectly connected to the connection duct. 3 steel blind rivets are prescribed for the connection with the exhaust socket. These must not impair the shutter function. Before commissioning, ensure that the shut-off shutter is moving with ease.
- if the metal shut-off shutter [3] is not correctly inserted and screwed down in the exhaust socket. During installation, it is essential that the shut-off shutter is correctly positioned and screwed down. The soldered strut must be correctly inserted and the shutter must move with ease.

## 6. Operating the fan

ER-UP/Centro units are usually switched on and off manually (using a switch), depending on unit variant and connection variant.

Barrier-free units work as per the automatic function. Alternatively, these units can be operated using an optional switch.

Please read chapter 7.4.6, ER-UP controls, or contact your installer or planner for details of the special functions and operating characteristics.

### Control model standard, D, VZ, VZC, G, GVZ, GVZC EC, I and RC.

The fan is switched on and off with a switch that is to be provided by the customer.

#### Control model F

Barrier-free unit. The fan switches on once the room lighting is activated. The fan can also be operated manually using an optional switch → function description in chapter 22.

#### Control model H

Barrier-free unit. The fan switches on when the air humidity limit value is exceeded. No switch needed. The fan can also be operated manually using an optional switch → function description in chapter 22.

#### Control model RC

Radio-controlled fan system with up to 3 ER 100 RC fans. These are switched on and off via a radio switch, room air control RLS RC or radio window contacts.



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



In the event of thermal overload, the fan switches off. Wait until the motor has cooled down. Cool-down time can be up to 10 minutes. The fan switches back on automatically after cooling down.

## 7. Product information

### 7.1 Certificates of approval

According to the general requirements of the German Centre of Competence for Construction, whenever the ER-UP/Centro units are used, the certificate of approval or a copy of this must be present at the point of use for the ER-UP housing

- ER-UP/G: Z-51.1-7 or
- ER-UPD or ER-UPB: Z-51.1-46

→ General building approval for ventilation units for single air extraction systems with shared exhaust air duct according to DIN 18017-3.



Certificates of approval are available on request or on our website [www.maico-ventilatoren.com](http://www.maico-ventilatoren.com). The approval number can be seen on the TÜV sticker/conformity mark [S3].

### 7.2 Installation conditions

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

- in single air extraction systems with a shared main duct.
- with an air supply via shaft or duct.
- with permitted connection ducts.
- with the ER-UP housing and fan inserted suited to the system.
- with recess installation in the wall or ceiling.
- if correctly installed as per the instructions in this manual and the general building approval ER-UP/G: Z-51.1-7 or ER-UPD/ER-UPB: Z-51.1-46.
- with sufficient space from the wall or ceiling.
- with a fireproof installation shaft for ER-UPB housings.
- 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-UP fans can also be used as standalone units.
- Installation in the wall or ceiling is permitted.
- ER-100 fans can be used to extract air from another room (interior kitchen etc.).

### 7.3 Permitted exhaust air systems

In accordance with DIN 18017-3, the following exhaust air systems are permitted for ER-UP/Centro.

Exhaust air system	UP housing		
	ER-UP/G	ER-UPD	ER-UPB
aeroduct fire protection system	No	Yes**	No
PAM-GLOBAL RML cast ventilation system	No	Yes**	Yes***
Ceiling penetration seal system	Yes*	No	No
System with fireproof shaft	No	Yes**	Yes***
Air extraction system without fire protection	Yes*	No	No

- \* ER-UP/G can be used inside and outside the shaft, connection duct made from flexible aluminium duct, second room connection made from flexible aluminium duct.
- \*\* ER-UPD can be used inside and outside the shaft, connection duct made from steel folded spiral-seams duct, second room connection made from flexible aluminium duct.
- \*\*\* ER-UPB can be used inside the shaft, connection duct made from flexible aluminium duct, second room connection made from steel folded spiral-seams duct.

### 7.4 Combination options

The ER recess-mounted exhaust air systems described here comprise a UP housing and a fan insert/exhaust air element with cover.

In the **shell phase** the

**ER-UP housing** (ER-UP/G, ER-UPD and ER-UPB) are installed, wired and provided with a plaster protective cover.

ER-UP/G and ER-UPD housings can be used with a second room connection set (ER-ZR) for second room ventilation. Ensure the right housing variant (ER-UPB/L, ER-UPB/R or ER-UPB/U) for ER-UPB housings.

WC seat ventilation at the same time as room ventilation is possible using the second room connection of the ER-UP/G or ER-UPD housings. The Maico extraction socket ER-AS (Ø 70) should be used for this purpose and a connection established to the WC seat.

**Final assembly** is undertaken once the plastering and paint work is complete.

**For decentralised ventilation**, an ER 60 or ER 100 fan insert is placed in the recess-mounted housing, the exhaust air filter and cover are fitted.

**For centralised ventilation**, a Centro-M or Centro-E exhaust air element is installed with an exhaust air filter and cover → separate Centro operating instructions.

ER 100 units are approved **for second room ventilation**. The following control types can be used for this: Standard, VZ, VZ 15, VZC, G, I, D or RC. Centralised ventilation with Centro-M or Centro-E exhaust air elements is possible in combination with ER-UP/G housings under certain preconditions → chapter 12.1.1.

**ER 60 units are not permitted for the second room connection.**



For ER radio fans and Maico smart → ER 100 RC instructions.



#### 7.4.1 ER-UP housing types

The 3 recess housing units ER-UP/G, ER-UPD and ER-UPB are available for recess installation. These should be selected to match the exhaust air system. The connection diameter for all housing types is Ø 75 or Ø 80.

#### 7.4.2 Recess-mounted housing ER-UP/G

- Plastic housing without fire protection equipment. Can be combined with ceiling penetration seal.
- Suited to wall or ceiling installation, inside or outside the exhaust air shaft.
- Permissible air outlet direction with wall installation: upwards, to right or to left.
- Plastic exhaust socket with airstream-operated plastic shutter, maintenance-free.
- For connecting second room ventilation with knockout points at bottom, on right and left.

#### 7.4.3 Recess-mounted housing ER-UPD

- Can be combined with Maico aeroduct or Saint-Gobain-Gussrohr PAM-Global RML.
- Can also be used outside fireproof shaft.
- Housing with maintenance-free fire protection shut-off device to prevent fire from spreading (K90-18017).
- Suited to wall or ceiling installation, inside or outside the exhaust air shaft.
- Permissible air outlet direction with wall installation: upwards, to right or to left.
- Metal exhaust socket with airstream-operated metal backflow preventer with soldered strut.
- For connecting second room ventilation with knockout points at bottom, on right and left.

#### 7.4.4 Recess-mounted housing ER-UPB

- Housing with maintenance-free fire protection shut-off device to prevent fire from spreading (K90-18017).
- Housing with fire protection cover for use in fireproof exhaust air shafts.
- Suitable for wall or ceiling installation in a fireproof exhaust air shaft.
- Permissible air outlet direction with wall installation: upwards, to right or to left.
- Metal exhaust socket with airstream-operated metal backflow preventer with soldered strut.

#### 7.4.5 Fan insert

- Fan insert with cover and exhaust air filter for installation in ER-UP/G-, ER-UPD or ER-UPB housing.
- Electrical plug connection for quick installation in the ER-UP housing.
- Fan insert has snap-on attachment for easy installation.
- Cover with exhaust air filter. Trouble-free filter exchange without using tools.
- It is possible to rotate the cover by  $\pm 5^\circ$  to compensate for housings which have been fitted at an angle.
- Filter change without tools.
- For single or second room ventilation using a single fan. Exception: H models only for single room ventilation.
- F and H model: Barrier-free products, as the fan switches itself on and off automatically.
- Energy-saving motor with thermal overload protection. This switches itself off in the event of overheating and then back on again automatically after cooling down.
- The fans may be subject to jet water in areas 1 and 2 (DIN VDE 0100-701: 2008-10 and/or HD 60 364-7:2007).

### 7.4.6 ER-UP controls (circuit board types)

ER-UP fans are available in various models and with various unit properties. These depend on the control/circuit board type used in the fan insert [11].



The circuit variants and functions suited to the circuit board type are described in chapter 22. Tolerance of all time details max. + 20 %.

- **Standard model**
- **VZ model:** with start delay and overrun time.
- **VZ 15 model** with start delay and overrun time.
- **VZC model** with adjustable start delay and adjustable overrun time.
- **F model:** Barrier-free. With light control for rooms without windows (min. switch-on brightness 30 lx, max. switch-off brightness on unit 0.3 lx). With start delay (50 sec.) and overrun time (6 min.).
- **G model:** With base load circuit. Continuous operation at 35 m³/h, high speed (full load) can be switched with optional switch.
- **GVZ model** with base load circuit, start delay and overrun time, Continuous operation at 35 m³/h, high speed (full load) can be switched with optional switch.
- **GVZC EC model** with base load circuit and adjustable delay timing. Continuous operation at 35 m³/h, high speed (full load) can be switched with optional switch. The EC variant has a particularly economical EC motor.
- **I model** with interval control. For manual operation with start delay and overrun time. Operating period can be set to between 0 and 15 hours with intervals of around 10 minutes. Interval control off if 0 hours is set (Ti setting setting screw in far left position). Interval control active if Ti setting screw is turned at least 1/4 of a turn to the right from the far left position.
- **H model:** Barrier-free. With humidity control. Switch-on point can be set using jumper (70 % r.h. ex factory). Overrun time controlled by program (min. 6 minutes at full load). Can also be operated manually with optional switch. Not suitable for second room ventilation.
- **D model:** In combination with three-step switch with 3 power levels: 35, 60 or 100 m³/h. Can be used when combined with supply air elements for controlled domestic ventilation.
- **RC model** with radio electronics: Use in radio-controlled ventilation system MAICO smart. Based on EnOcean technology. Network-compatible (master-slave) → separate ER 100 RC operating instructions. On/Off using radio switch or radio control RLS RC. With 3 power levels 35, 60 or 100 m³/h.

Unit type	Circuit board type	Start delay [s]	Overrun time [min]	Can be controlled by speed	Power cable [mm <sup>2</sup> ]
ER 60	Standard board			No	3 x 1.5
ER 100	Standard board			Yes	3 x 1.5
ER 60 VZ, ER 100 VZ	VZ board	50	6	No	5 x 1.5
ER 60 VZ 15, ER 100 VZ 15	VZ 15 board	50	15	No	5 x 1.5
ER 60 VZC, ER 100 VZC	VZ 24 C board	0...150	1.5...24	No	5 x 1.5
ER 60 F, ER 100 F	F board	50	6	No	3 x 1.5
ER 60 G, ER 100 G	G board			No	5 x 1.5
ER 60 GVZ ER 100 GVZ	G board + VZ board			No	5 x 1.5
ER 60 GVZC EC	GVZC EC board	0, 30 (W), 60, 120, 180	0, 1, 3, 6, 15 (W)	No	5 x 1.5
ER 60 I, ER 100 I	VZI 10 board	50*	10*	No	5 x 1.5
ER 60 H, ER 100 H	H board		6	No	5 x 1.5
ER 100 D	Standard board			No	5 x 1.5
ER 100 RC	RC board		15**	No	3 x 1.5

**Tolerance of time details max. + 20 %.**

W factory setting

\* start delay and overrun time  
for manual operation, e.g. using  
light switch

\*\* overrun time only if unit is used  
with single switch, without room air  
control RLS RC.

### 8. Environmental conditions and operating limits

The permissible maximum temperature of the conveyance medium is + 40 °C.

The domestic air supply 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 has 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 door ventilation grille MLK.

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

#### 8.1 Regulations for operation with fireplaces

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

The fan may only be installed in rooms with air-ventilated fireplaces if:

- the evaluation criteria drawn up by the responsible, regional master chimney sweep are met,
- a parallel operation of air-ventilated fireplaces for liquid or gaseous fuels and the air-extracting equipment can be prevented, or
- the extraction of exhaust gas from the air-ventilated fireplaces is monitored by special safety equipment. The ventilation unit or the fireplaces must be switched off if the equipment is triggered.

### 9. Technical data

The sound power level  $L_{WA7}$  is 30 to 49 dB(A), depending on unit model. For more technical data, → the rating plate [S2].

For dimensions and characteristic curves → Catalogue or Internet (maico-ventilatoren.com). For ER 100 RC radio components → separate operating instructions.

### 10. Storage

Only store fan horizontally in a suitable, dry room. Ambient temperature - 10 to + 60 °C.

Maico accepts no liability for corrosion damage caused by improper storage, e.g. storage in damp surroundings.

## 11. Installation preparations





Suitable mounting material is to be supplied by the customer.

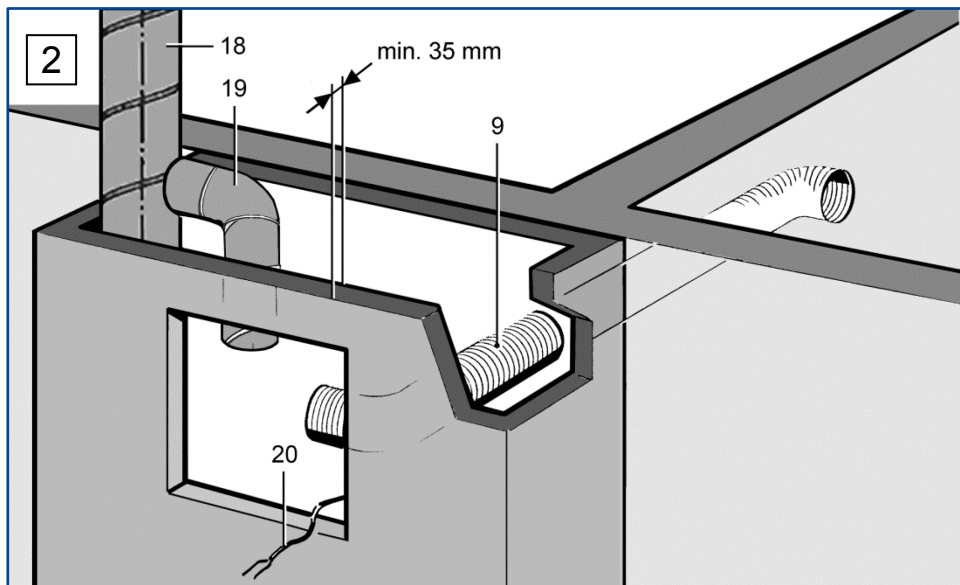
### 11.1 Requirements in line with approval

	ER-UP/G + ER 60/100/ Second room	ER-UPD + ER 60/100/ Second room	ER-UPB + ER 60/100	ER-UPB Second room
Number of units per floor, living unit or fire zone	Max. 3 fans or 3 connections	Max. 3 fans or 3 connections	Max. 3 fans or 3 connections	Max. 3 fans or 3 connections
Connection diameter	Ø 75 or Ø 80 mm			
Shaft wall	Any board material	Min. 35 mm board material F90	Min. 35 mm board material F90	Min. 35 mm board material F90
Connection ducts inside the shaft	E.g. flexible aluminium duct AFR 80 between main duct in shaft and ER unit, max. 2 m long (→ approval).	Steel folded spiral-seams duct between main duct in shaft and ER unit, max. 2 m long (→ approval).	Flexible aluminium duct AFR 80 or steel folded spiral- seams duct between main duct in shaft and ER unit, max. 2 m long (→ approval).	Flexible aluminium duct AFR 80 or steel folded spiral- seams duct between main duct in shaft and ER unit, max. 2 m long (→ approval). Steel folded spiral-seams duct between ER unit and second room connection.
Connection ducts outside the shaft	E.g. flexible aluminium duct AFR 80 between main duct in shaft and ER unit, max. 2 m long (→ approval).	Steel folded spiral-seams duct Ø 75 or Ø 80 between main duct in shaft and ER unit, max. 2 m long (→ approval).		
Duct elbows in unit connection duct	max. 90° bend, ascending			

## 11. Installation preparations

	ER-UP/G + ER 60/100/ Second room	ER-UPD + ER 60/100/ Second room	ER-UPB + ER 60/100	ER-UPB Second room
<b>Number of duct elbows permitted for wall installation</b> 	max. 2 x 90°			
<b>Number of duct elbows permitted for ceiling installation</b> 	max. 2 x 90°			
<b>Regulating equipment in the exhaust air duct</b>	not permitted			
<b>Opening in wall/ceiling for unit connection duct Ø 80</b>	Brickwork or concrete: 130 mm Board materials (F90): Outer duct diameter			





## 11.2 Preparations for wall installation

- 9 Suction duct for second room connection on  
 ER-UP/G: Flexible aluminium duct  
 AFR 75/AFR 80  
 ER-UPD: Flexible aluminium duct  
 AFR 75/AFR 80  
 or steel folded spiral-seams duct Ø75/Ø80  
 ER-UPB: Steel folded spiral-seams duct  
 Ø75/Ø80
- 18 Main duct: Steel folded spiral-seams duct
- 19 Connection duct on  
 ER-UP/G: Flexible aluminium duct  
 AFR 75/AFR 80  
 ER-UPD: Steel folded spiral-seams  
 duct Ø75/Ø80  
 ER-UPB: Flexible aluminium duct  
 AFR 75/AFR 80, permitted inside the shaft
- 21 Power cable



### Mounting instructions

- Note approval → chapter 7.1.
- Be sure to use duct materials suitable for the ER-UP housing → items [18] and [19].
- 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

resistant to deformation (e.g. concrete, cement mortar, fire protection filler).

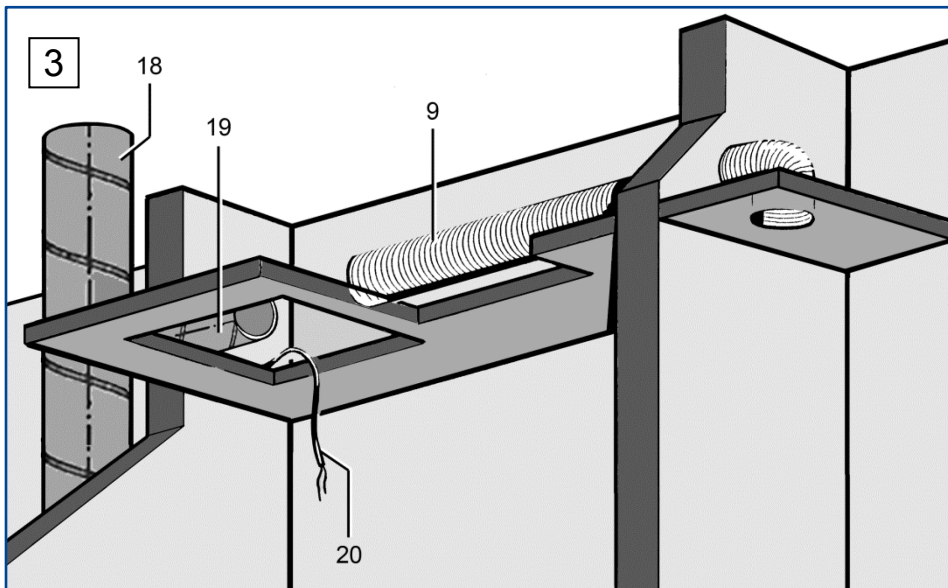
### NOTICE

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

- Ventilation ducts connected to the unit must be wrapped with a suitable adhesive tape to protect against corrosion inside the brickwork, e.g. using cold-shrink tape.

### Preparing the shaft

1. Produce opening in shaft or alternatively produce a wall facing. Ensure a suitable, flat surface for the ER-UP housing so that the fan insert can be safely inserted in the housing later on.
2. For a second room connection, produce an opening in the wall or shaft for the suction duct [9]. Note permissible housing installation positions.
3. Correctly attach main ventilation duct [18] inside the shaft.
4. Fit ceiling compound for fire protection systems. To do this, encase the ceiling and pour in the material from above.



5. Connect connection duct [18], suitable for the ER-UP housing, to the main duct and seal for ventilation.
6. Cut connection duct [19] to length, note a maximum duct length of 2 m.

**i** 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.

7. Lay suction duct [9] and seal gap remaining correctly as described in previous mounting instructions.
8. Lay power cable [20] in shaft and allow to protrude by around 30 cm above the shaft opening.
9. In the ceiling area, fit a spigot (→ Fig. 4) 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.

10. Lay power cable [20] in line with chapter 11.4.

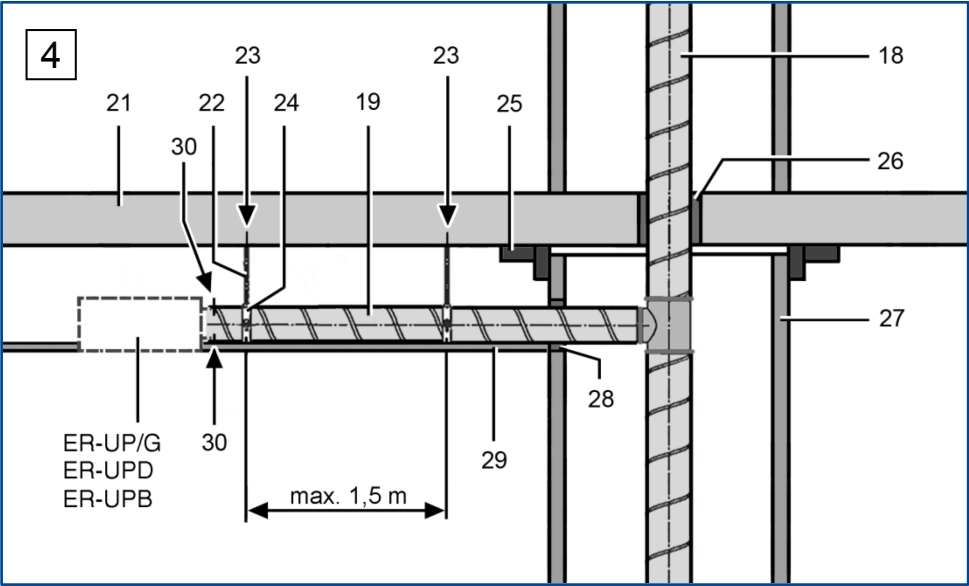
### 11.3 Ceiling installation preparations

- 9 Suction duct for second room connection on  
ER-UP/G: Flexible aluminium duct  
AFR 75/AFR 80  
ER-UPD: Flexible aluminium duct  
AFR 75/AFR 80 or  
steel folded spiral-seams duct Ø75/Ø80  
ER-UPB: Steel folded spiral-seams  
duct Ø75/Ø80
- 18 Main duct: Steel folded spiral-seams duct
- 19 Connection duct on  
ER-UP/G: Flexible aluminium duct  
AFR 75/AFR 80  
ER-UPD: Steel folded spiral-seams  
duct Ø75/Ø80  
ER-UPB: Steel folded spiral-seams  
duct Ø75/Ø80
- 20 Power cable

**i** Be sure to note the approval and mounting instructions in chapter 11.2.

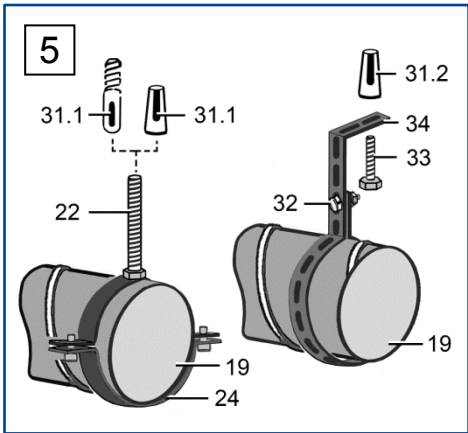
### Preparing the shaft and suspended ceiling

1. Produce an opening in the suspended ceiling (fire resistance not stipulated).
2. Produce opening for connection duct [19] Ø 75 or Ø 80 in shaft.




- 18 Main duct (steel folded spiral-seams duct)
- 19 Connection duct  
ER-UPB, ER-UPD: Steel folded spiral-seams duct  
ER-UP/G: Flexible aluminium duct
- 21 Floor ceiling
- 22 Steel threaded rod / stair bolt
- 23 Duct attachment → Fig. 5
- 24 Duct clamp / clamping band
- 25 Spigot
- 26 Ceiling compound
- 27 Shaft wall
- 28 Wall/board seal
- 29 Suspended ceiling
- 30 Steel screws or steel blind rivets  
(3 of each)
- 31 Steel dowel:
  - 31.1 Steel dowel or anchor bolt
  - 31.2 Metal expansion dowel
- 32 Retaining bolt with nut
- 33 Retaining bolt
- 34 Steel clamping band

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



**i** Ensure a spacing of max. 1.5 m between the duct attachments [23].

 Be sure to note the approval and mounting instructions in chapter 11.2.

## 11. Installation preparations

3. For a second room connection, produce the opening in the wall or shaft for the suction duct [9]. Note installation positions for the second room connection.
4. Correctly attach main ventilation duct [18] inside the shaft.
5. Fit ceiling compound for fire protection systems. To do this, encase the ceiling and pour in the material from above.
6. Fit duct attachments to ceiling (→ Fig. 5). Only use permitted attachment material.



### DANGER

#### **Risk of incorrect installation if non-permitted attachment material is used.**

- Only secure connection duct to ceiling with permitted attachment material (duct clamp or clamping band).
7. Connect permitted connection duct [19] to main duct and seal for ventilation, for example with cold-shrink tape.
  8. Apply wall/board compound [28]. Seal gap between brickwork and folded spiral-seams duct. The gap remaining must be fully sealed with non-flammable materials resistant to deformation. For example, use concrete or cement mortar, for wall boards use fire protection filler.
  9. Fit suspended ceiling. With ER-UPD housings ensure a suitable, flat surface so that the fan insert can be safely inserted in the housing later on.
  10. Attach spigot made from shaft material F90 around the shaft.



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

11. Lay power cable [20] in line with chapter 11.4.

## 11.4 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.



### Information

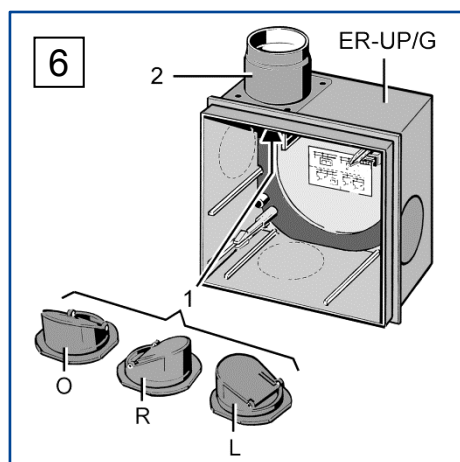
- Always note the relevant specifications for electrical installations and when fitting equipment. In Germany observe DIN VDE 0100 and the corresponding parts in particular.
  - Observe ambient conditions (→ chapter 8) and technical data (→ chapter 9).
  - Note permitted duct cross-section of max. 1.5 mm<sup>2</sup>.
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 safety check of trigger equipment according to chapter 11.5.

## 11.5 Preparing the shut-off device/shutter

Before mounting the housing, always

- ER-UP/G: check the position of the plastic shutter. Ensure that the shutter is fully functional.
- ER-UPD, ER-UPB: check the metal shut-off device. Ensure that trigger equipment is fully functional.

### 11.5.1 Plastic shutter without fire protection – ER-UP/G housing



#### ER-UP/G housing

- 1 Plastic backflow preventer
  - O:** Installation position for upwards air outlet direction
  - R:** Installation position for right air outlet direction
  - L:** Installation position for left air outlet direction
- 2 Plastic exhaust socket



If installing on the wall with air outlet direction (exhaust socket) to the left or right, note the following.

Install shutter [1] turned 90° (→ Fig. 6, item [L] or [R]) so it closes fully sealed in the installation position.

#### NOTICE

**If the installation position is wrong, the plastic shutter will not close sealed. Odours may then escape from the ventilation channel.**

- Insert shutter [1] in exhaust socket [2] of ER-UP/G housing as appropriate for installation position, i.e. upwards/to right/to left. Ensure that the shutter closes fully sealed.

#### Preparing the plastic shutter for wall installation

##### Upwards air outlet direction "O"

Do not carry out any modifications. The shutter is fitted correctly ex-factory.

##### Air outlet direction to the right "R"

1. Remove plastic backflow preventer. Simply pull this down and out of the exhaust socket.
2. Turn backflow preventer → item [R].
3. Insert backflow preventer in exhaust socket until stop is reached.

##### Air outlet direction to the left "L"

1. Remove plastic backflow preventer. Simply pull this down and out of the exhaust socket.
2. Turn backflow preventer → item [L].
3. Insert backflow preventer in exhaust socket until stop is reached.

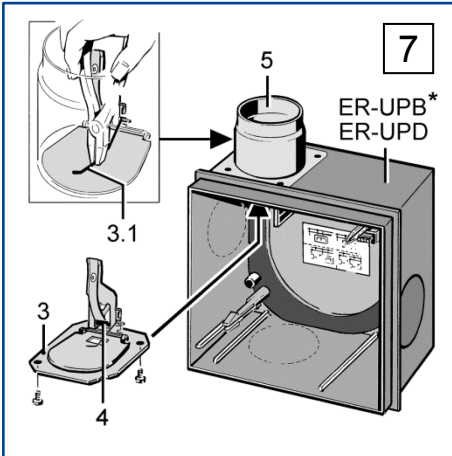
#### Preparing the plastic shutter for ceiling installation

As a rule use the standard installation position with upwards air outlet direction "O" for ceiling installation. The shutter is fitted correctly ex-factory.

## 11. Installation preparations

### 11.5.2 Fire protection shut-off device

ER-UPD and ER-UPB housing



#### ER-UPD, ER-UPB

- 3 Metal shut-off shutter with trigger equipment and yoke spring [3.1]
- 4 Soldered strut
- 5 Metal exhaust socket

\* Shown without fire protection boards

#### NOTICE

**Unpleasant odours from the main duct. The fire protection shut-off device does not close fully sealed if incorrectly installed.**

- Before installation check and ensure that the installation position is correct and the trigger equipment is fully functional.

#### Preparing the metal shut-off device with upwards air outlet direction

1. Remove the fitted yoke spring [3.1]. To do this, use pliers to pull yoke spring out of exhaust socket from above → Fig. 7.
2. Check and ensure that shut-off shutter is fully functional.

#### Preparing the metal shut-off device with air outlet direction to the right or left

No modifications needed.

1. Check and ensure that shut-off shutter is fully functional.

#### NOTICE

**The fire protection shut-off device is permanently closed if there is no soldered strut. Air extraction is then no longer possible.**

- Check that the solder strut is correctly in place before the installation. The functionality of the trigger equipment must be ensured so that the shut-off shutter also opens in normal operation.



## 12. Housing installation

- ER-UP/G housing
- ER-UPD housing
- ER-UPB housing

### 12.1 Installing ER-UP/G housing

#### 12.1.1 Impermissible connections on ER-UP/G housing

**The following are not permitted:**

- Second room connection with an ER 60 fan insert (all models).
- Second room connection in combination with Centro exhaust air elements.
- Connecting a WC odour extraction unit in combination with Centro exhaust elements.
- Use of an ER fan or Centro exhaust air element in the bathroom or toilet room if other rooms in the apartment are to be vented with the same unit at the same time.

#### 12.1.2 Mounting instructions for ER-UP/G housing (→ chapter 11.1 and approval)

ER-UP/G are equipped with a plastic housing without fire protection equipment. The ER-UP/G housing may be installed in the following installation positions:

- Mounting on wall: With upward, right-hand or left-hand air outlet direction (exhaust socket). Installation with mounting support.
- Mounting on ceiling and suspended ceiling: Installation with mounting support.
- Mounting on ceiling and non-suspended ceiling: Mounting directly on the ceiling.


Suitable mounting material is to be supplied by the customer.

**The plastic shutter should be prepared according to chapter 11.5.1 so that it closes fully sealed in the installation position.**

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

Break open one of the housing segments [S] to use the second room connection set ER-ZR or the extraction socket ER-AS.


A WC seat ventilation unit is connected to the ER-UP/G housing using the Ø 70 extraction socket ER-AS.

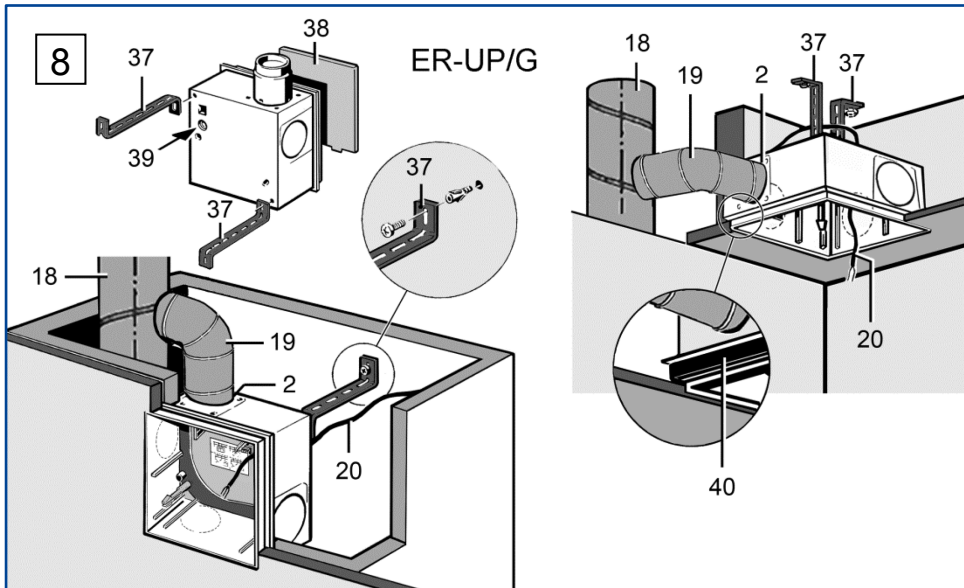
 The WC seat ventilation unit must not be connected to the second room connection socket or the Centro exhaust air element.

Use expanded rubber ER-MO for acoustic insulation of thin ceilings capable of resonance (→ accessories).

#### 12.1.3 Important information about plastering

- Max. compensable plaster overshoot 7 mm.
- Max. protruding housing edge 20 mm, can be compensated for with spacing frame DR 60/100.
- Installation at a depth of 50 to 100 mm can be compensated for with the two-part wall frame ER-MR.
- The gap remaining between the ER-UP/G housing and shaft must be fully sealed with non-flammable materials resistant to deformation so that incorrect air is not drawn in.
- Joints between the UPB housing and wall can be covered with cover frame ER-AR.

 We recommend keeping these mounting and operating instructions until final installation in the ER-UP/G housing.



- 2 Exhaust socket with plastic shutter
- 18 Main duct, steel folded spiral-seams duct
- 19 Connection duct, flexible aluminium duct AFR 80, Ø 75/80
- 20 Power cable
- 37 Mounting support UPM 60/100 (2 items)
- 38 Plaster protective cover
- 39 Cable grommet
- 40 Expanded rubber ER-MO

### 12.1.4 ER-UP/G wall installation, single room

1. Take plaster protective cover [38] out of ER-UP/G housing.

#### NOTICE

**The unit will be damaged and function impaired if the fixing screws used are incorrect / too long.**

- Fixing screws may not penetrate into ER-UP/G housing. Use screws provided (mounting support UPM 60/100).
2. Cut the mounting support [37] to the required length, bend it into shape and fix it to the ER-UP/G housing with the supplied fixing screws.

3. Mark fixing holes for mounting support on rear shaft wall, produce holes and insert dowels. Suitable mounting material is to be supplied by the customer.



#### DANGER

**Risk of short-circuits and damage to unit. If the cable grommet [39] is not installed correctly, water may penetrate the ER-UP/G housing. The degree of protection can no longer be guaranteed.**

- Drive through cable grommet so that it can seal the cable sheathing all the way round (circular, no slots).

4. Insert power cable [20] from rear of housing through cable grommet [39] into ER-UP/G housing.
5. Insert ER-UP/G housing with the mounting support [37] into the shaft and fix it to the rear wall of the shaft.

### DANGER

**Fire may spread if connection duct [19] is incorrectly installed.**

- Only use permitted cable sheathing (→ chapter 11.1).
- Correctly attach connection cable to exhaust socket.

6. Connect connection duct [19] to exhaust socket [2] sealed for ventilation, e.g. with cold-shrink tape.
7. Make the electrical connection → chapter 22.
8. Insert the plaster protective cover in the housing.
9. Plaster in housing flush with front edge, note tile thickness if necessary → chapter 12.1.3.

### 12.1.5 ER-UP/G ceiling installation, single room

1. Take plaster protective cover [38] out of ER-UP/G housing.

### NOTICE

**The unit will be damaged and function impaired if the fixing screws used are incorrect / too long.**

- Fixing screws may not penetrate into ER-UP/G housing. Use screws provided (mounting support UPM 60/100).
2. For suspended ceilings, cut mounting support [37] to the required length, bend it into shape and fix it to the ER-UP/G housing with the supplied fixing screws (→ Fig. 8).
  3. Mark fixing holes for mounting support ER-UP/G housing on ceiling, produce holes and insert dowels. Suitable mounting material is to be supplied by the customer.

### DANGER

**Risk of short-circuits and damage to unit. If the cable grommet [39] is not installed correctly, water may penetrate the ER-UP/G housing. Protection class is not guaranteed.**

- Drive through cable grommet so that it can seal the cable sheathing all the way round (circular, no slots).

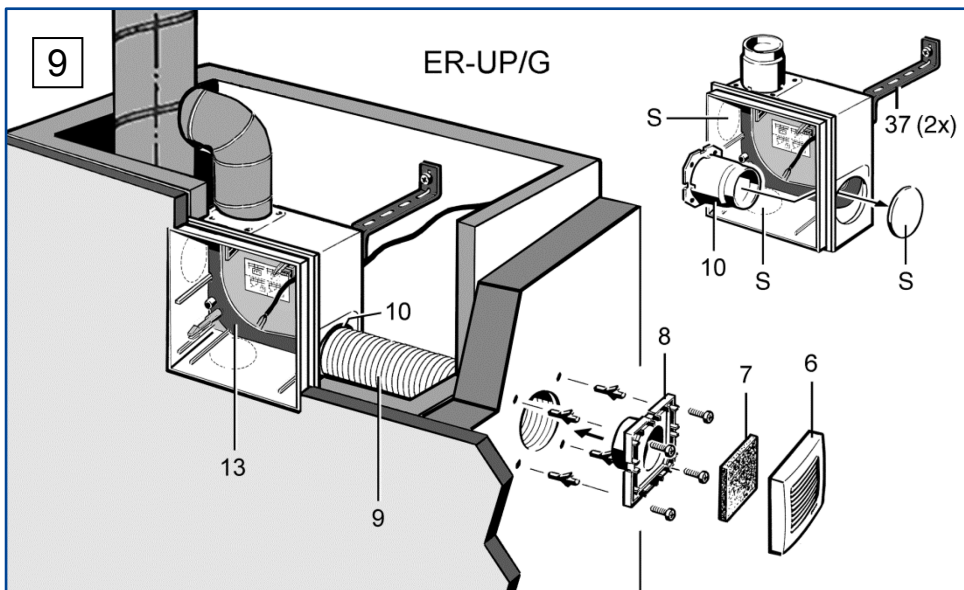
4. Insert power cable [20] from rear of housing through cable grommet [39] into ER-UP/G housing.
5. Move ER-UP/G housing into desired position and secure to ceiling with/without mounting support.

### DANGER

**Fire may spread if connection duct [19] is incorrectly installed.**

- Only use permitted cable sheathing (→ chapter 11.1).
- Correctly attach connection cable to exhaust socket.

6. Secure connection duct [19] to exhaust socket [2]. Then seal well for ventilation, e.g. with cold-shrink tape.
7. Make the electrical connection → chapter 22.
8. Insert plaster protective cover [38] in the housing.
9. Plaster in housing flush with front edge.



- 6 Protective grille
- 7 Filter mat, filter class G2
- 8 Adapter
- 9 Suction duct, second room connection: flexible aluminium duct AFR 75/AFR 80
- 10 Installation socket for second room extraction Ø 75/80
- 13 Housing floor seal
- 37 Mounting support UPM 60/100 (2 items)
- S Housing segment

### 12.1.6 ER-UP/G wall installation, second room

1. Cut out the desired housing segment "S" (left, right or bottom) at the marking with a knife.

#### NOTICE

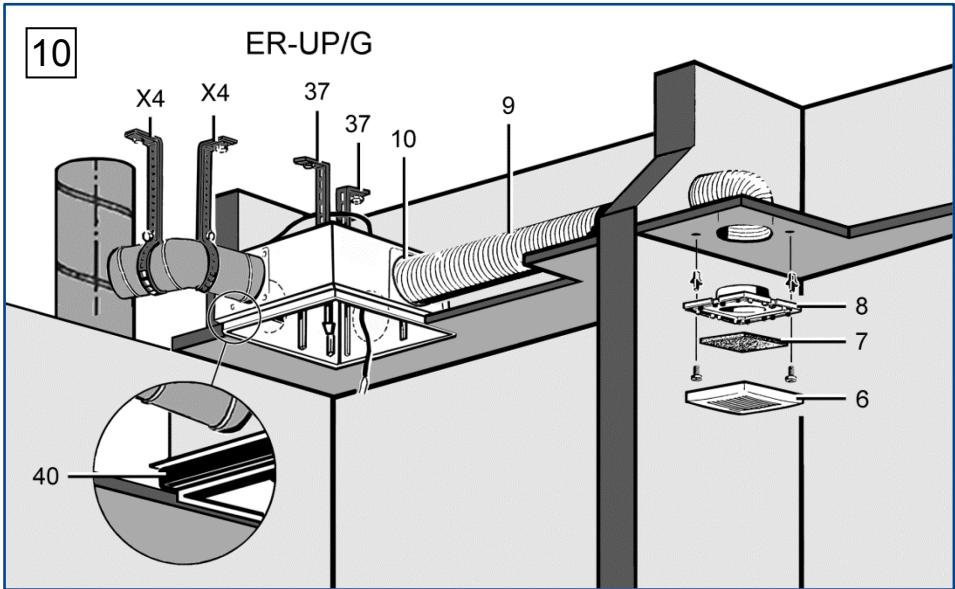
**The unit will be damaged and function impaired by incorrect air if the plastic socket is inserted incorrectly. Protection class is no longer guaranteed.**

- Lift up housing floor seal [13] near socket and insert installation socket [10]. Reposition housing floor seal correctly.

2. Place installation socket [10] in ER-UP/G housing. The edge of the socket must click into place on the wall of the housing.
3. Install housing as described above for "single room".
4. Connect suction duct [9] with installation socket [10] sealed for ventilation.
5. Produce fixing holes for adapter [8] and insert dowels.
6. Connect adapter [8] to suction duct [9], e.g. with cold-shrink tape.
7. Secure adapter [8] to the wall.
8. Insert filter mat [7] and locate protective grille [6] in the correct position.



With second room extraction, keep regulating plate [16] (→ Fig. 1) for final installation. This is needed to operate the ER 100 fan insert and is inserted in the cover [15] (→ Fig. 1).



- 6 Protective grille
- 7 Filter mat, filter class G2
- 8 Adapter
- 9 Suction duct, second room connection: flexible aluminium duct AFR 75/AFR 80
- 10 Installation socket for second room extraction Ø 75/80
- 37 UPM 60/100 mounting support
- 40 Expanded rubber ER-MO
- X4 Clamping band or steel threaded rod with pipe clamp → chapter 11.3

### 12.1.7 Ceiling installation ER-UP/G – second room

Observe mounting instructions in chapter 12.1.2.

1. Mount ER-UP/G housing on ceiling as described in chapter 12.1.5.
2. Mount second room connection ER-ZR on ceiling as described in chapter 12.1.6.

**i** Secure ER-UP housing and the connection cable with 2 mounting supports [37] and/or clamping bands/threaded rods each.

### 12.2 Installation of ER-UPD housing

#### 12.2.1 Impermissible connections on ER-UPD housing

**The following are not permitted:**

- Second room connection with an ER 60 fan insert (all models).
- Second room connection in combination with Centro exhaust air elements.
- Connecting a WC odour extraction unit in combination with Centro exhaust elements.
- Use of an ER fan or Centro exhaust air element in the bathroom or toilet room if other rooms in the apartment are to be vented at the same time.

#### 12.2.2 Mounting instructions for ER-UPD housing (→ chapter 11.1 and approval)

ER-UPD are fitted with a plastic housing and fire protection shut-off device. The ER-UPD housing may be installed in the following installation positions:

They can be installed with an air outlet direction (exhaust socket) upwards, to the right or left and are suitable for ceiling installation. With an upwards air outlet direction, the yoke spring should be removed from the shut-off device.

A description of ceiling installation in a suspended ceiling can be found below. In the case of non-suspended ceilings, the housing is mounted directly on the ceiling.

Wall installation should be undertaken as described for ceiling installation. Suitable mounting material is to be supplied by the customer. To screw down the connection duct, use steel screws, if screwing into brickwork/concrete use steel dowels → chapter 11.

**The metal shut-off device should be prepared according to chapter 11.5.2.**

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

Break open one of the housing segments [S] to use the second room connection set ER-ZR.

Use expanded rubber ER-MO for acoustic insulation of thin ceilings capable of resonance (→ accessories).

A WC seat ventilation unit is connected to the ER-UPD housing using the Ø 70 extraction socket ER-AS.

#### 12.2.3 Important information about plastering

- Minimum overlap required for the ventilation shaft (without tiles, etc.) in the area of the duct connection 10 mm.
- Max. compensable plaster overshoot 7 mm.
- Max. protruding housing edge 20 mm, can be compensated for with spacing frame DR 60/100.
- Installation at a depth of 50 to 100 mm can be compensated for with the two-part wall frame ER-MR.
- The gap remaining between the ER-UPD housing and shaft must be fully sealed with non-flammable materials resistant to deformation so that incorrect air is not drawn in.
- Joints between the UPB housing and wall can be covered with cover frame ER-AR.

#### 12.2.4 ER-UPD installation, single room

1. Take plaster protective cover [38] out of ER-UPD housing.

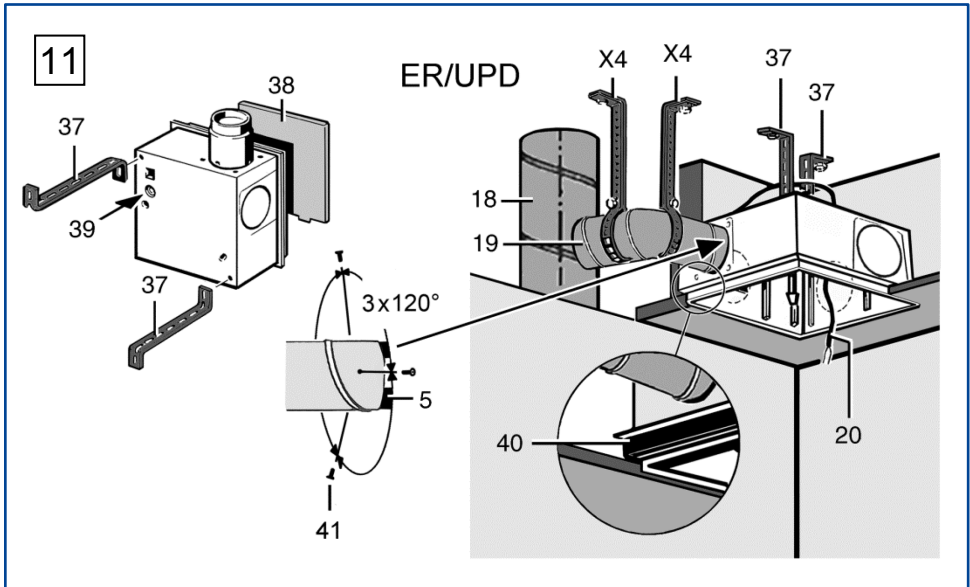
#### **NOTICE**

**The unit will be damaged and function impaired if the fixing screws used are incorrect / too long.**

- Fixing screws may not penetrate into the ER-UPD housing. Use screws provided (UPM 60/100).

2. For suspended ceilings, cut mounting support [37] to the required length, bend it into shape and fix it to the ER-UPD housing with the supplied fixing screws.





- 5 Metal exhaust socket with shut-off shutter
- 18 Main duct, steel folded spiral-seams duct
- 19 Connection duct, steel folded spiral-seams duct Ø 75/80
- 20 Power cable
- 37 UPM 60/100 mounting support
- 38 Plaster protective cover
- 39 Cable grommet
- 40 Expanded rubber ER-MO
- X4 Clamping band or steel threaded rod with pipe clamp → chapter 11.3
3. Mark fixing holes for mounting support on ceiling, drill dowel holes and insert steel dowels.

### **⚠ DANGER**

**Risk of short-circuits and damage to unit. If the cable grommet [39] is not installed correctly, water may penetrate the ER-UPD housing. Protection class is not guaranteed.**

- Drive through cable grommet so that it can seal the cable sheathing all the way round (circular, no slots).

4. Insert power cable [20] from rear of housing through cable grommet into ER-UPD housing.

5. Locate ER-UPD housing in the desired position and fix it to the ceiling with two mounting supports.



### **DANGER**

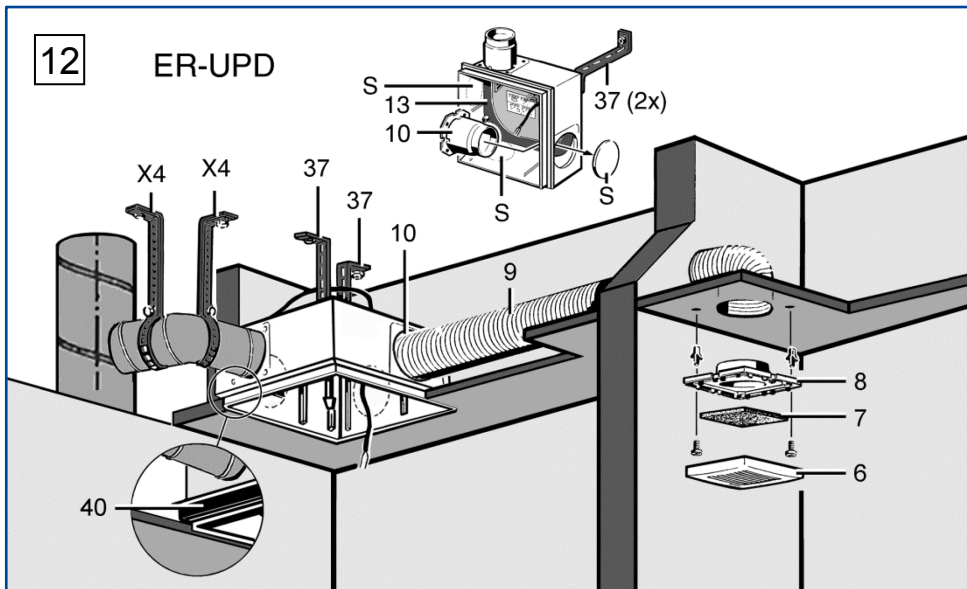
**Fire may spread if connection duct [19] is incorrectly installed.**

- Only use permitted cable sheathing (→ chapter 11.1).
- Correctly attach connection cable to exhaust socket.

6. Slide connection duct to stop above exhaust socket [5]. Secure connection duct and exhaust socket with 3 steel blind rivets [41]. Then seal well for ventilation, e.g. with cold-shrink tape.
7. Make the electrical connection → chapter 22.
8. Insert plaster protective cover [38] in the housing.
9. Plaster in housing flush with front edge, note tile thickness if necessary → chapter 12.2.3.



We recommend keeping these mounting and operating instructions until final installation in the ER-UPD housing.



- 6 Protective grille
- 7 Filter mat, filter class G2
- 8 Adapter
- 9 Suction duct, second room connection: flexible aluminium duct AFR 75/AFR 80
- 10 Plastic installation socket for second room extraction Ø 75/80
- 13 Housing floor seal
- 37 Mounting support UPM 60/100 (2 items)
- 40 Expanded rubber ER-MO
- S Housing segment
- X4 Clamping band or steel threaded rod with pipe clamp → chapter 11.3

1. Cut out the desired housing segment "S" (left, right or bottom) at the marking with a knife.
2. Place plastic installation socket [10] in ER-UP/G housing. The edge of the socket must click into place on the wall of the housing.
3. Install ER-UPD housing as described in chapter 12.2.4.
4. Connect suction duct [9] with plastic installation socket [10] sealed for ventilation.
5. Produce fixing holes for adapter [8] and insert dowels.
6. Connect adapter [8] to suction duct [9], e.g. with cold-shrink tape.
7. Secure adapter [8] to the wall/ceiling with screws.
8. Insert filter mat [7] and locate protective grille [6] in the correct position.

### 12.2.5 ER-UPD installation, second room

#### NOTICE

**The unit will be damaged and function impaired by incorrect air if the plastic socket is inserted incorrectly. Protection class is no longer guaranteed.**

- Lift up housing floor seal [13] near socket and insert installation socket [10]. Reposition housing floor seal correctly.



With second room extraction, keep regulating plate [16] (→ Fig. 1) for final installation. This is needed to operate the ER 100 fan insert and is inserted in the cover [15] (→ Fig. 1).

## 12.3 Installation of ER-UPB housing

### 12.3.1 Impermissible connections on ER-UPB housing

The following are not permitted:

- Second room connection with an ER 60 fan insert (all models).
- Second room connection in combination with Centro exhaust air elements.
- Connection of a WC odour extraction unit.
- Use of an ER fan or Centro exhaust air element in the bathroom or toilet room if other rooms in the apartment are to be vented at the same time.

### 12.3.2 Mounting instructions for ER-UPB housing (→ chapter 11.1 and approval)

ER-UPB are equipped with fire protection cover and metal shut-off shutter and trigger equipment.

Wall installation is described below. Ceiling installation should be undertaken following the description for wall installation.

Housings can be installed with an air outlet direction (exhaust socket) upwards, to the right or left. With an upwards air outlet direction, the yoke spring should be removed from the shut-off device.

Suitable mounting material is to be supplied by the customer. To screw down the connection duct use steel screws, if screwing into brickwork/concrete use steel dowels.

**The metal shut-off device should be prepared according to chapter 11.5.2.**

A second room connection is only permitted with ER-UPB/R, ER-UPB/L or ER-UPB/U.

### 12.3.3 Important information about plastering



#### **DANGER**

**Fire may spread if ER-UPB housing is incorrectly installed.**

- Any gap remaining between the ER-UPB housing and shaft/tiles must be fully sealed with non-flammable materials resistant to deformation.

- Minimum overlap required for the ventilation shaft (without tiles, etc.) in the area of the duct connection 10 mm.
- Max. compensable plaster overshoot 7 mm.
- Max. protruding housing edge 20 mm, can be compensated for with spacing frame DR 60/100.
- Installation at a depth of 50 to 100 mm can be compensated for with the two-part wall frame ER-MR.
- Joints between the UPB housing and wall can be covered with cover frame ER-AR.

### 12.3.4 Installation of ER-UPB – single room (→ Fig. 13)

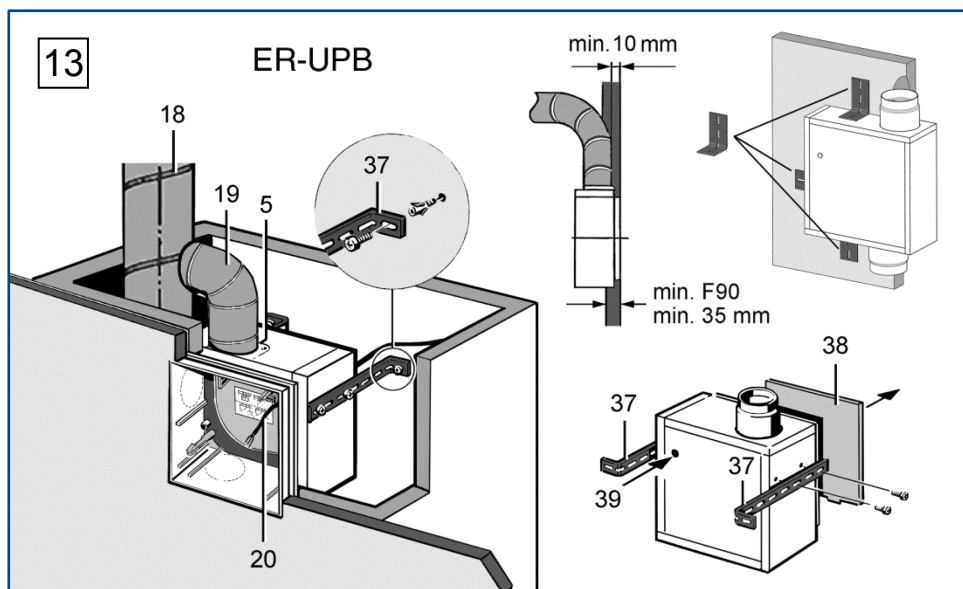
1. Take plaster protective cover [38] out of ER-UPB housing.

#### **NOTICE**

**The unit will be damaged and function impaired if the fixing screws used are incorrect / too long.**

- Fixing screws may not penetrate into the ER-UPB housing. Use the screws provided.

2. Install the mounting support [37] onto the ER-UPB housing with the supplied screws.
3. Mark fixing holes for mounting support on rear shaft wall, produce holes and insert dowels. Suitable mounting material is to be supplied by the customer.



- 5 Metal exhaust socket with shut-off shutter
- 18 Main duct, steel folded spiral-seams duct
- 19 Connection duct, flexible aluminium duct AFR Ø75/80
- 20 Power cable
- 37 UPM 60/100 mounting support
- 38 Plaster protective cover
- 39 Cable grommet

### DANGER

**Risk of short-circuits and damage to unit. If the cable grommet [39] is not installed correctly, water may penetrate the ER-UPB housing. Protection class is not guaranteed.**

- Drive through cable grommet so that it can seal the cable sheathing all the way round (circular, no slots).

4. Insert power cable [20] from rear through cable grommet into ER-UPB housing.
5. Insert ER-UPB housing with two mounting supports into the shaft and fix to the rear wall of the shaft.

### DANGER

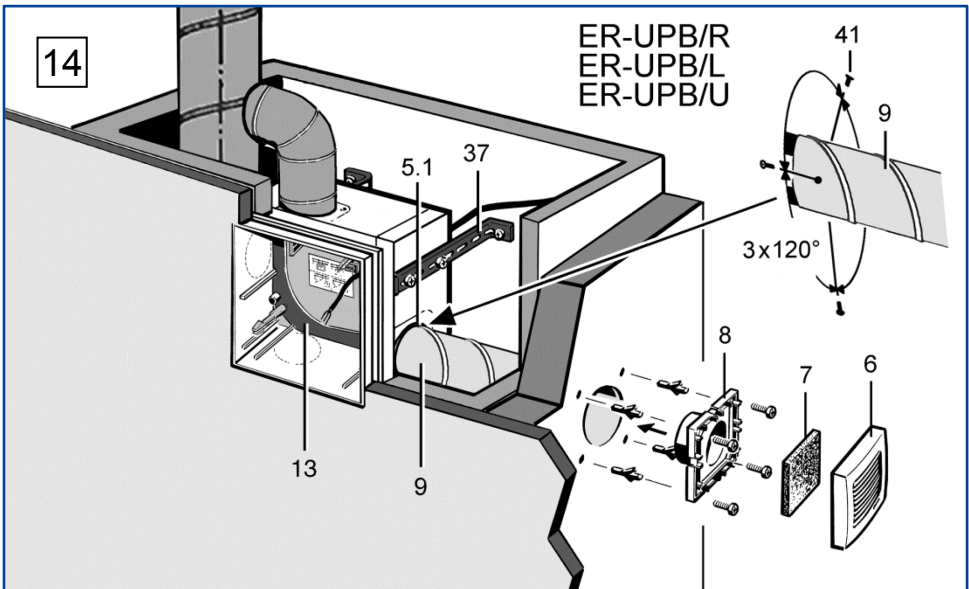
**Fire may spread if connection duct [19] is incorrectly installed.**

- Only use permitted cable sheathing (→ chapter 11.1).
- Correctly attach connection cable to exhaust socket.

6. Connect connection duct [19] to exhaust socket [5] sealed, e.g. with cold-shrink tape.
7. Make the electrical connection  
→ chapter 22.
8. Insert plaster protective cover [38] in the housing.
9. Any gap remaining between the ER-UPB housing and shaft/tiles must be fully sealed with non-flammable materials resistant to deformation. Take account of tile thickness (→ approval).



We recommend keeping these mounting and operating instructions until final installation in the ER-UPB housing.

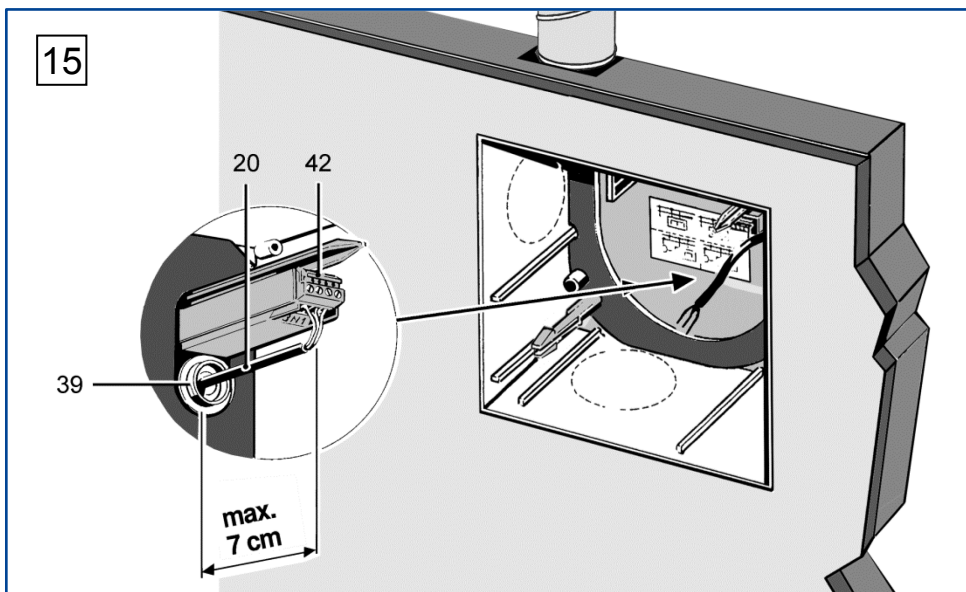


- 5.1 Steel connection socket Ø 75/80 for second room extraction on ER-UPB
- 6 Protective grille
- 7 Filter mat, filter class G2
- 8 Adapter
- 9 Suction duct, second room connection: Steel folded spiral-seams duct Ø 75/80
- 13 Housing floor seal
- 37 UPM 60/100 mounting support

### 12.3.5 ER-UPB/R, ER-UPB/L and ER-UPB/U installation (second room)

1. Install ER-UPB housing as described in chapter 12.3.4.
2. Secure suction duct [9] and steel socket [5.1] with 3 steel blind rivets [41] or steel screws and connect sealed for ventilation.
3. Produce fixing holes for adapter [8] and insert dowels.
4. Connect adapter [8] to suction duct [9], e.g. with cold-shrink tape.
5. Secure adapter [8] to the wall with screws.
6. Insert filter mat [7] and locate protective grille [6] in the correct position.

**i** With second room extraction, keep regulating plate [16] (→ Fig. 1) for final installation. This is needed to operate the ER 100 fan insert and is inserted in the cover [15] (→ Fig. 1).



### 13. Electrical connection

- 20 Power cable
- 39 Cable grommet
- 42 Terminal box

**i** To prevent the fan and/or electric components from malfunctioning as a result of reverse polarity voltages and induction (incorrect ignition or glowing/flaring of LED, energy-saving or neon lamps), the fan and electric components connected in parallel, such as room lighting, should be connected via a double-pole switch.

#### **! 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.

#### **! DANGER**

##### **Danger to life 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.
- Note that the maximum spacing to the terminal box is 7 cm. Do not cut the power cable inside the housing too short.

#### **! CAUTION**

##### **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!



**NOTICE**

The unit will be damaged through contact with components at risk of ESD on the electronics board of VZ, VZ 15, GVZ, VZC, GVZC EC, F, I, H and RC units.

- Avoid direct touching of the components or contact surfaces.

**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.

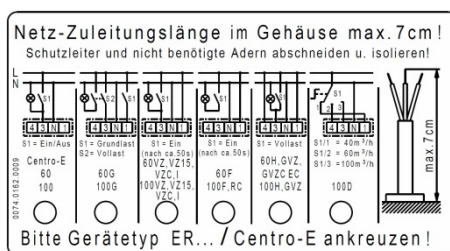
- Connect the unit as shown in the wiring diagrams in chapter 22.
- Do not connect additional consumers to terminal 4.

**Information**

- Always note the relevant specifications for electrical installations and when installing equipment. In Germany particular attention must be paid to the DIN VDE 0100 and the corresponding parts. In rooms with baths or shower units, for example, this would be Part 701.
- The electrical connection is only permitted by trained electricians.
- The electrical connection can be undertaken upon installation of the ER-UP housing.
- Observe ambient conditions (→ chapter 8) and technical data (→ chapter 9).
- Note 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:
  - if installation is undertaken correctly,
  - if the power cable is correctly guided to the intended cable grommet,
  - if fan unit is correctly engaged in ER-UP housing and
  - if cover [15] is closed and engaged.

**13.1.1 Connect the unit electrically**

1. Switch off mains fuse, secure and fit warning sign.
2. Remove plaster protective cover.
3. Cut off and insulate PE conductor and individual cable cores that are not required!
4. Remove power cable surround and cut to length according to Figure 15.
5. Wire power cable to the terminal box according to the wiring diagram in Chapter 22.



6. Mark the fan type on the wiring diagram in the recess-mounted housing.  
This prevents mistakes during final installation, for example, if different fan inserts are fitted in the system.
7. Insert plaster protective cover.



We recommend keeping these mounting and operating instructions until final installation in the ER-UP housing.

### 14. Installation of fan insert and cover

#### 14.1 Settings on electronic circuit boards

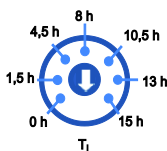
##### Information

- Electronic circuit boards [12] of the ER variants standard, D, VZ, VZ 15, G, GVZ and F have no setting options.
- Electronic circuit boards [12] of the ER variants I, VZC, H, RC and GVZC can be set as follows. For unit functions → chap. 7.4.6.
- Tolerance for time details max. + 20 %.
- Units with time delay switches (VZ, VZ 15, GVZ, VZC, GVZC EC, F, I, RC and H fans) have resistance to interference in line with EN 55014-2 (depending on pulse form and energy factor 1000 to 4000 V). These values can be exceeded when operating with fluorescent tubes. In this case, additional interference suppression measures (L, C components or RC module, protection diodes, varistors) are required.

##### Setting

- Place fan insert on front so that electronic circuit board [12] (control) is freely accessible.
- Set the desired values as follows with the potentiometers or jumpers.

#### Electronic circuit boards ER 60 I and ER 100 I



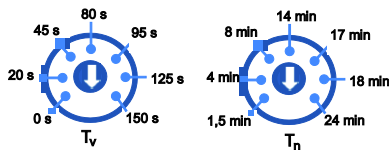
**Potentiometer Ti:** Service life. In far left position, interval control off.

#### Electronic circuit boards ER 60 VZC and ER 100 VZC

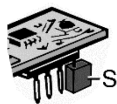


**Potentiometer Tv**  
Start delay (seconds)

**Potentiometer Tn**  
Overrun time (minutes)

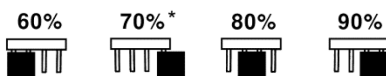


#### Electronic circuit boards ER 60 H and ER 100 H



Set the humidity switch-on point with jumper S.

\* Factory setting 70 % rel. hum.

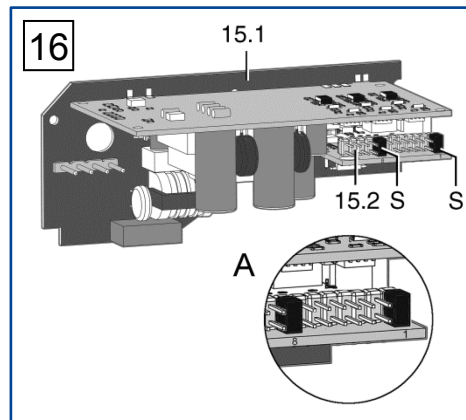


**Only approved for second room connection.**

#### Electronic circuit board ER 100 RC

→ Separate ER 100 RC operating instructions.

#### ER 60 GVZC EC



15.1 GVZC EC board

15.2 Plug connector

S Jumper

**Fig. 16 A:** Factory setting with start delay of ½ min. and overrun time of 15 min.



Two control variants can be implemented with the ER 60 GVZC EC control:

- **Permanent base load** with connectible rated load (standard circuit).
- **Connectible base and rated load** (circuit variant).

The jumper [S] can be used to set the start delay time (0, ½, 1, 2 or 3 minutes) and overrun time (0, 1, 3, 6 or 15 minutes).

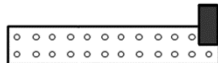
#### Jumper settings on plug connector [15.2]

##### Factory setting



##### Start delay

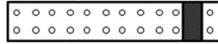
0 minutes



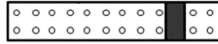
½ minute



1 minute



2 minutes

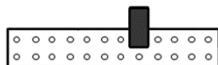


3 minutes



##### Overrun time

0 minutes



1 minute



3 minutes



6 minutes



15 minutes



#### NOTICE

**Damage to GVZC EC board if jumper is changed using inappropriate tool.**

- Only remove jumper with appropriate tool.

To adjust the start delay and overrun time, plug the two jumpers [S] in the desired position.

### 14.2 Installing fan insert/exhaust air element → Fig. 16

The ER fan insert / The Centro exhaust air element is inserted in recess-mounted housings ER-UP/G, ER-UPD or ER-UPB as follows.

1. Switch off mains fuse, secure and fit warning sign.
2. Remove plaster protective cover [41] and clean any dirt off the recess-mounted housing.
3. Ensure that the fan type ticked in the housing box matches the type to be fitted.
4. Check ease of movement of shut-off shutter/backflow preventer.

When installed, the shut-off shutter/backflow preventer must close automatically.

With ER-UPD and ER-UPB, this must close automatically when the yoke spring used is pressed (exception - upwards air outlet, → chap. 11.5.2).

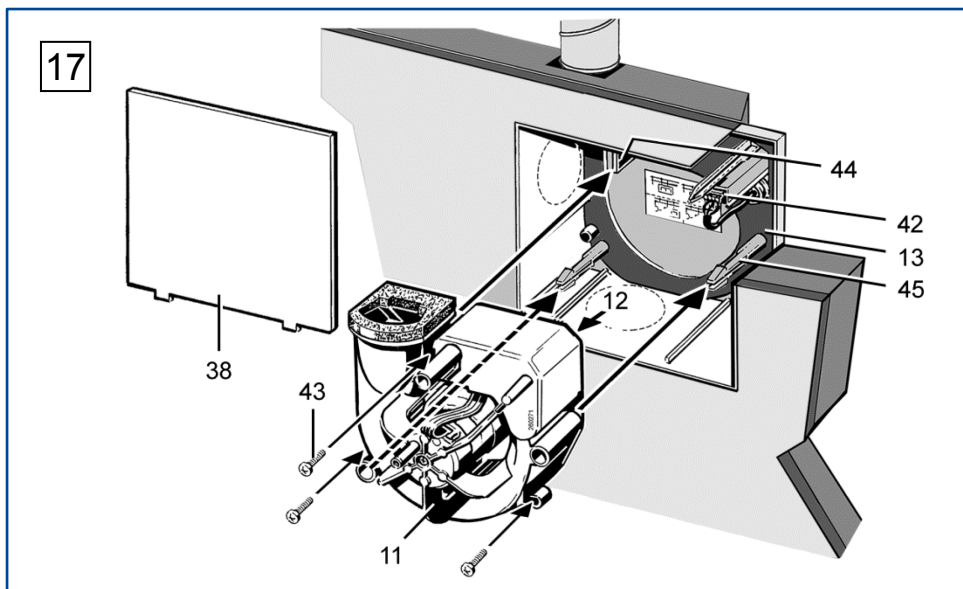
With ER-UPD and ER-UPB ensure that the soldered strut is inserted correctly → chapter 11.5.2.

5. Check that the housing floor seal is correctly positioned and insert properly.

#### NOTICE

**The noise level will increase if the housing floor seal [13] is fitted incorrectly. Degree of protection not guaranteed if housing floor seal [13] is positioned incorrectly.**

- The housing floor seal must lie flat and without any creases in the housing.



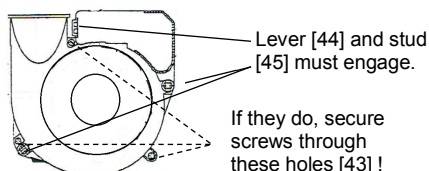
- 11 Fan insert
  - 12 Electronic circuit board (control)
  - 13 Housing floor seal
  - 38 Plaster protective cover
  - 42 Terminal box
  - 43 Optional fixing with screws  
(to be supplied by the customer)
  - 44 Locking lever
  - 45 Stud
6. Check that all screw connections are tight.
  7. Check that connection data matches technical data on the unit (rating plate S2 → Fig.1 ).

### NOTICE

**Function will be impaired if fan insert/exhaust air element is not inserted correctly.**

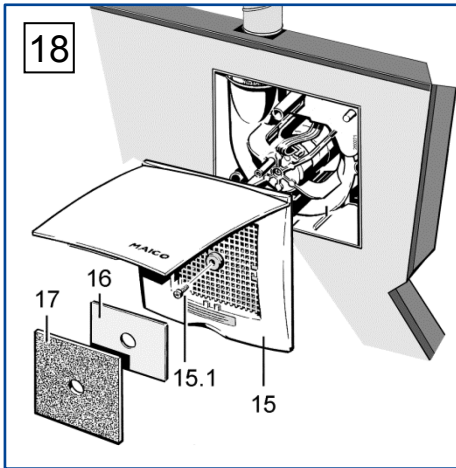
- Ensure correct engagement in the 3 fixing points [44] and [45].
- As an option, fix the fan insert 3 suitable fixing screws [43].

Note wiring diagrams in box base.  
Cables must not prevent the fan from being slid in.



8. Slide fan insert/exhaust air element evenly and in parallel onto both studs [45]. Ensure that both locking tabs of the studs and the locking lever [44] engage audibly.
9. Ensure that the fan insert / exhaust air element is correctly engaged. To do this, gently pull and press against the fan insert / exhaust air element [11]. The fan / exhaust air element must not move. Alternatively, securely screw down the fan insert/exhaust air element in the housing → previous mounting instructions.

### 14.3 Installing the cover



- 15 Cover with central screw [15.1]
- 16 Regulating plate for second room connection
- 17 Filter mat, filter class G2



#### Mounting instructions

- Cover [15] can be turned up to  $\pm 5^\circ$  (to provide compensation if housing is inserted at too much of an angle). If installing on a wall, ensure that the Maico name is in the bottom right.
  - If the housing edge is flush with the plaster, use central screw [15.1], M6 x 16 mm, to secure the cover.
  - With a plaster overshoot of up to 20 mm to the housing edge, use spacing frame DR 60/100 between the wall and cover. The customer should provide a longer screw (M6 fillister head) to secure the cover.
  - If the housing is plastered in too deep, compensate for this with a two-part wall frame ER-MR (can be adjusted between 50...100 mm). This prevents air from being drawn in from the shaft. Use the supplied screw to fix the cover.
1. Fold up cover [15] at the recessed grip, place on the ER-UP housing and secure with the central screw [15.1].
  2. If necessary, first fit a spacing or wall frame.
  3. With second room extraction, insert regulating plate [16] below locking tabs at the side on the intake grille of the cover, insert filter mat [17].
  4. Lock cover [15]. The lock must engage audibly.
  5. Switch on mains fuse, remove warning sign.
  6. Undertake initial commissioning and function test.

### 15. Commissioning

1. Switch on mains fuse and remove warning sign.
2. Run function test. This involves switching the fan on and off, note delay times (for control versions → chapter 7.4.6, ER-UP controls). Take additional instructions into account.
3. Check that the fan is running smoothly.
4. Switch off unit.

### 16. Cleaning, maintenance

The unit is practically maintenance-free.  
The air filter simply needs replacing every 3 to 6 months, depending on the amount of dirt.

#### **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.

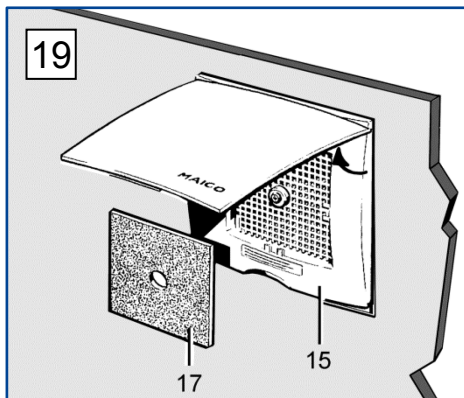
#### **NOTICE**

##### **The unit will be damaged if incorrect cleaning agent is used.**

- Do not use aggressive cleaning agents.

1. Only use a dry cloth to clean the cover [15] of the fan.
2. If the cover is very dirty, remove it and clean with water.

### 16.1 Filter change




15 Cover

17 Filter mat, filter class G2

#### **Filter change interval every 3 to 6 months, depending on the amount of dirt.**

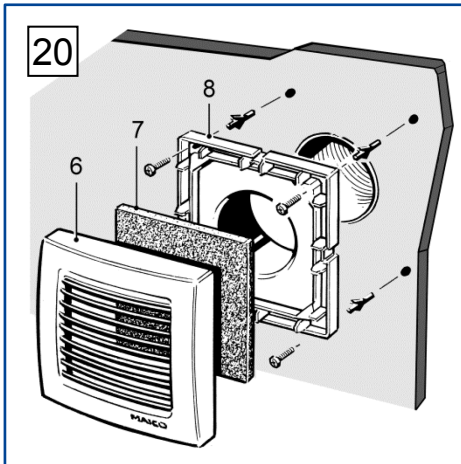
1. Fold up cover [15].
2. Take out filter mat [17] and replace it.
3. Place filter mat on intake grille cover [15] and lock cover. The lock must engage audibly.

 **Filter mats ZF 60/100:**  
Pack of 5, filter class G2  
in accordance with EN 779,  
Art. no. 0093.0680

#### **Should you have any questions**

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Steinbeisstraße 20  
78056 Villingen-Schwenningen  
Germany  
Tel. +49 7720 694 445  
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E-mail: ersatzteilservice@maico.de

## 16.2 Filter change, second room



- 6 Protective grille
- 7 Filter mat
- 8 Adaptor

**i** Filter change interval every 3 to 6 months, depending on the amount of dirt.

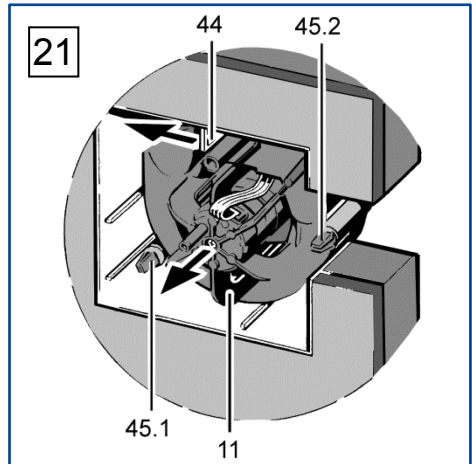
1. Pull the protective grille [6] forwards.
2. Take out filter mat [7] and replace it.
3. Insert new filter mat into protective grille, then press protective grille into correct position on adapter [8] until it audibly engages.

**i** Filter mats ZRF:  
Pack of 5, filter class G2  
in accordance with EN 779,  
Art. no. 0093.0923

### Should you have any questions

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E-mail: ersatzteilservice@maico.de

## 16.3 Removing fan insert

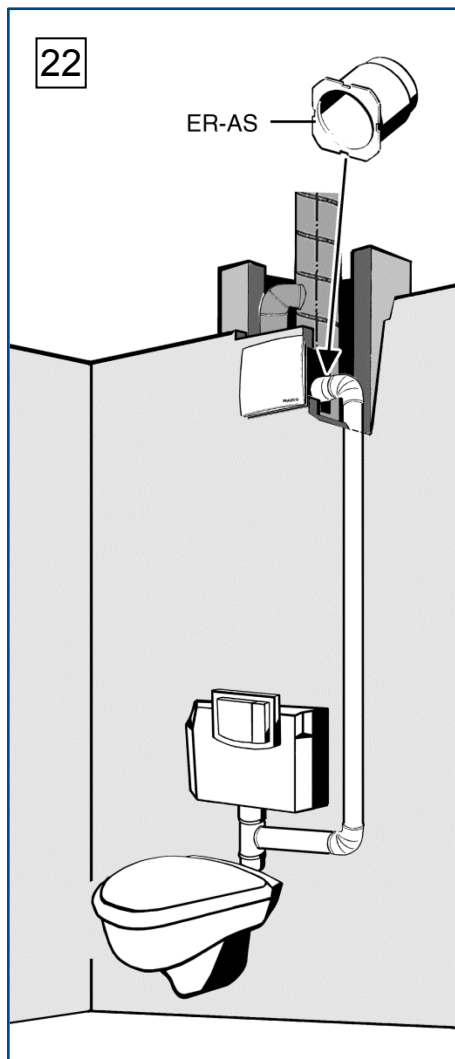


- 11 Fan insert
- 44 Locking lever
- 45 Studs [45.1] and [45.2]

1. Switch off mains fuse, secure and fit warning sign.
2. Open cover [15] and remove.
3. Press locking lever [44] slightly outwards, (→ arrow), release and slightly lift the fan unit [11].
4. Press together locking tabs of stud [45.1] and raise fan insert slightly.
5. Press together locking tabs of stud [45.2] and evenly pull entire fan insert out of bottom part of housing in parallel.
6. Installation is carried out in reverse order.

**i** Degree of protection according to rating plate only guaranteed if installed as stipulated (fan insert engaged, internal cover closed).

### 17. Extraction socket ER-AS for WC odour extraction



#### NOTICE

Extraction socket AS not permitted in conjunction with ER-UPB or Centro!

ER-UP/G and ER-UPD housing units can be connected to the WC flushing pipe using the ER-AS extraction socket. A  $\varnothing 70$  duct cross section facilitates low air speeds in the connecting duct and an effective, draft-free extraction of odours.

#### Pre-requirement for the connection

A  $\varnothing 70$  branch must be installed in the flushing pipe of the flush-mounted cistern.

#### Installation

1. Cut the left, right or bottom housing segment "S" out of ER-UP housing at the marking using a knife → Fig. 9.
2. Plug ER-AS extraction socket into ER-UP housing. The edge of the socket must click into place on the wall of the housing.



#### CAUTION

**Damage to unit in the event of improper installation position of the housing floor seal. Protection class is not guaranteed.**

- Lift up the housing floor seal before inserting the ER-AS extraction socket and then reposition it correctly afterwards.

3. Install ER-UP/G or ER-UPD housing unit in accordance with chapters 12.1 and 12.2. Note the descriptions relating to the second room connection.
  4. Connect connection duct to ER-AS extraction socket and branch in the cistern flushing pipe. Make sure the connections between the connection duct and the ER-AS extraction socket and the branch are tight.
  5. Install fan insert and cover [15] → chapter 14.
- i** It is important that regulating plate [16] and filter mat [17] supplied with the ER-AS are inserted. The cover must engage audibly when locking.
6. Run function test.

## 18. 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 mains fuse, secure against being accidentally switched back on and position a visible warning sign.

Fault	Cause, measure
Fan output inadequate.	<ul style="list-style-type: none"> <li>• Dirty filter. Replace filter.</li> <li>• Locking hook not engaged. Engage fan insert correctly.</li> <li>• Incorrect duct diameter. Check diameter of the main duct, refer to diagram in the catalogue.</li> <li>• Supply air cross section is too small. Increase the supply air cross section.</li> </ul>
VZ, VZ 15, VZC, GVZC EC, F, H and I models: No fan overrun.	The power on external conductor L connected to terminal 1 is interrupted when the fan is switched off. Connect the fan as per the wiring diagram.
VZ, VZ 15, VZC, GVZC EC, I models: Fan starts up immediately and stops immediately if is switched-off.	Terminals 1 and 3 are reversed. Connect the fan as per the wiring diagram.
Fan doesn't start up	Check whether the fan insert is correctly inserted.

Fault	Cause, measure
Fan is too loud.	<ul style="list-style-type: none"> <li>• Dirty filter. Replace filter.</li> <li>• Fan insert incorrectly inserted. Insert fan insert correctly in accordance with chapter 14.2.</li> </ul>
The main duct is undersized.	Re-calculate pressure losses.
H model does not switch from base load to full load operation despite there being moisture in the room.	The switch-on point has been set too high. Use jumper [S] to set a lower switch-on point.
H mode no longer switches back to base load operation or off even after a long period in full load operation.	The switch-off point has been set too low. Use jumper [S] to set a higher switch-on point. The switch-off point depends on the corresponding switch-on point.
Additional consumers connected to terminal 4.	Damage to the unit if connected incorrectly. Do not connect additional consumers to terminal 4. The unit may only be connected according to the wiring diagrams in chap. 22.
GVZC EC: No start delay / overrun time	Check jumper positions, → chap. 14.2



If the fault persists or reoccurs: Disconnect the fan completely from the mains power supply. Have error established and rectified by a trained electrician.

If you have any questions about troubleshooting: Service: +49 7720 6940.



### 19. Spare parts



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

Item	Designation	Article no.
1	Shutter VM ER-UP/G	E093.0608.0000
2	Exhaust socket ER-UP/G	0059.0884.0001
7	Filter mat ZRF: 5 items, filter class G2 according to EN 779	0093.0923
12	Circuit boards ER-60 ER-60 VZ ER-60 VZ 15 ER-60 VZC ER-60 G ER-60 F ER-60 I ER-60 GVZ ER-60 H ER-100 ER-100 VZ ER-100 VZ 15 ER-100 VZC ER-100 G ER-100 F ER-100 I ER-100 GVZ ER-100 H ER-100 D	F101.1012.9002 F101.1014.9004 F101.1024.9001 F101.1014.9801 F101.1012.9102 F101.1014.9104 F101.1014.9403 F101.1014.9504 F101.1014.9207 F101.1013.9002 F101.1015.9004 F101.1025.9001 F101.1015.9601 F101.1013.9102 F101.1015.9104 F101.1015.9403 F101.1015.9502 F101.1015.9207 F101.1021.9000
15	Cover, complete ER 60 / ER 100 ER 60 F / ER 100 F	0059.1017.9000 0059.1017.9100
17	Filter mat ZF 60/100: 5 items, filter class G2 according to EN 779	0093.0680

#### Should you have any questions

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### 20. Dismantling



Dismantling may only be undertaken by a trained electrician (→ chapter 1).



#### 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.

1. Switch off mains fuse, secure against being accidentally switched back on and fit a warning sign.
2. Remove fan insert.
3. Remove all cables.
4. Remove recess-mounted housing from wall.

### 21. Environmentally responsible disposal

The fan and the packaging contain parts that can be recycled, and should not end up in the domestic waste.

Dispose of the **packaging material** in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.

Dispose of the **air filter** in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.

At the end of its service life, dispose of the **unit** in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.

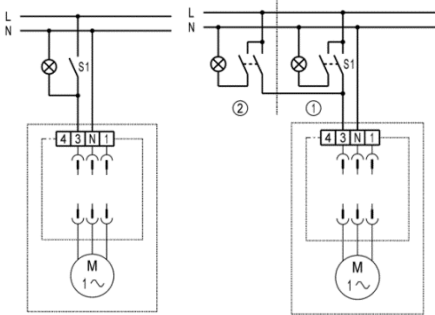


## 22. Wiring diagrams



**Tolerances for the times stated below = nominal value + 20 %.**

### ER 60, ER 100, Centro-E



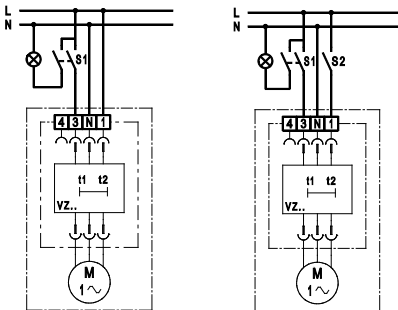
S1 On/Off switch

① = Main room

② = Second room

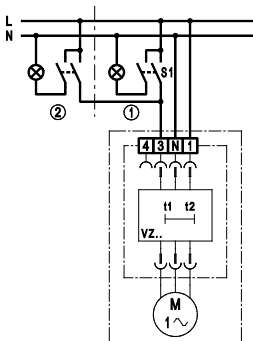
S1= On/Off switch

### ER 60 VZ, ER 60 VZ 15, ER 100 VZ, ER 100 VZ 15



Standard switching

Switching options



S1 = On/Off switch  
(ON after approx.  
50 seconds)

① = Main room

② = Second  
room

### ER 60 and ER 100, Centro-E

The fan starts up after switching on the room lighting (with switch S1). The fan also switches off after the room lighting has been turned off.

### ER 100 with main and second room connection

The fan starts up after switching on the room lighting (with switch S1). The fan also switches off after the room lighting has been turned off.

### ER 60 VZ, ER 60 VZ 15, ER 100 VZ, ER 100 VZ 15

#### Standard switching:

The fan starts up approximately 50 seconds after the room lighting is switched on. The fan has an overrun time of approximately 6 minutes after switching off. With VZ 15 units, the overrun time is approximately 15 minutes.

#### Switching option

The fan starts up approx. 50 seconds after switching on the room lighting (with switch S1 and S2). The fan has an overrun time of approximately 6 minutes after switching off with switch S1. With VZ 15 units, the overrun time is approximately 15 minutes. In addition, the fan can be switched off with switch S2 independent of the room lighting.

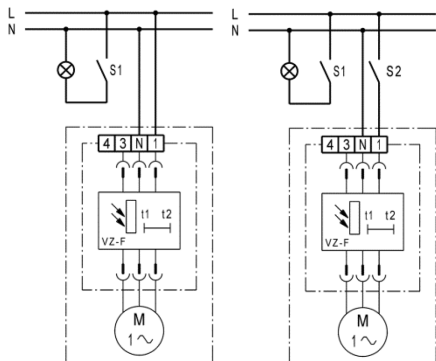
### ER 60 VZC, ER 100 VZC

The fan starts up after a start delay when the room lighting is switched on. This can be adjusted continuously from 0 - 150 seconds. Depending on the setting, the fan has an overrun time of between 1.5 and 24 minutes after switching off. The overrun time can be adjusted continuously from 1.5 to 24 minutes.

### ER 100 VZ and ER 100 VZ 15 with main and second room connection

The fan starts up approx. 50 seconds after switching on the room lighting (with one switch). The fan has an overrun time of approximately 6 minutes after switching off with the last switch to have been used. With VZ 15 units, the overrun time is approximately 15 minutes.

### ER 60 F, ER 100 F

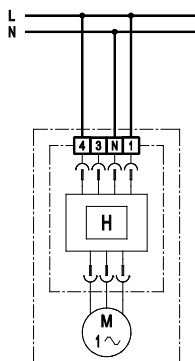


Standard switching

Switching options

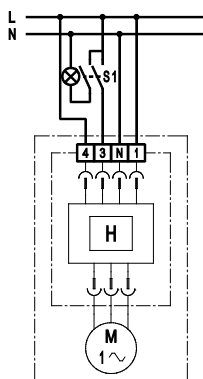
### ER 60 H, ER 100 H

Standard switching:



### ER 60 H, ER 100 H

Switching option 1



### ER 60 F, ER 100 F

#### Standard switching:

With light control. The ER 60 F and ER 100 F are designed for installation in windowless, dark rooms. The fan is switched on wirelessly through the brightness of the room lighting by a light control unit. The fan starts up after approximately 50 seconds. The lowest switch-on intensity is 30 lux or 50 lux if a spacing frame is used on the front of the cover. The fan has an overrun time of approximately 6 min. after the light is switched off. The room must be dark for the fan to switch itself off. Maximum lighting strength at the front of the cover is 0.3 lux.

#### Switching option

The fan can be switched off independently of the room lighting by an additional switch 2.

### ER 60 H, ER 100 H

With humidity control. The switch-on point can be set to 60%, 70%, 80% or 90% of the relative humidity with a jumper, see page 34. The switch-off point is approximately 10% under the correspondingly set switch-on point.



The humidity variant must not be deactivated using a switch on terminal 1 and/or terminal N.

#### Standard switching: Permanent base load operation

The fan is running in base load operation, humidity control is active. If the switch-on point is exceeded, the fan switches automatically over to full load operation. The fan switches automatically back to base load operation if the relative humidity falls below the switch-off point.

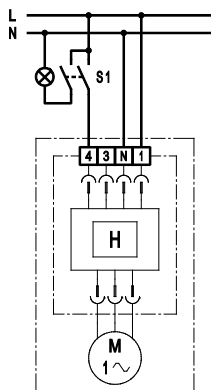
#### Switching option 1: Permanent base load operation with pre-defined overrun time

The fan is running in base load operation. Humidity control is active, see Standard Switching. Switch "S1" is used to switch manually to full load operation. After switching full load operation off with "S1", the fan continues in full load operation for an overrun time of 6 minutes. If after this time, the humidity as measured at the fan

- is higher than the switch-off point, the fan continues to run in full load operation until the humidity drops below the switch-off point. Only then does the fan switch automatically back to base load operation.
- is lower than the switch-off point, the fan immediately switches automatically back to base load operation.

**ER 60 H, ER 100 H**

## Switching option 2

**Switching option 2:****Manual base load operation**

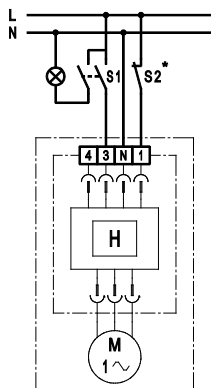
The fan is switched manually to base load operation with switch "S1". Humidity control is active, see Standard Switching. If, after being manually switched with switch "S1", the fan is in:

- full load operation, i.e. humidity is present, the fan continues to run until the humidity drops below the switch-off point. Only then does the fan switch off automatically.
- base load operation, the fan switches itself off automatically.

If switch S1 is open, the fan can start up automatically as a result of high room humidity.

**ER 60 H, ER 100 H**

## Switching option 3

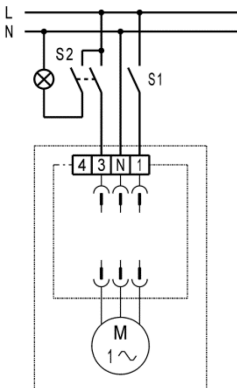
**Switching option 3: Manual full load operation with pre-defined overrun time.**

The fan is switched manually to full load operation with switch "S1". Humidity control is active. After switching off with "S1", the fan continues in full load operation for an overrun time of 6 minutes. If after this time, the humidity as measured at the fan

- is higher than the switch-off point, the fan continues to run in full load operation until the humidity drops below the switch-off point. Only then does the fan switch off automatically.
- is lower than the switch-off point, the fan immediately switches itself off automatically.

If switch S1 is open, the fan can start up automatically as a result of high room humidity.

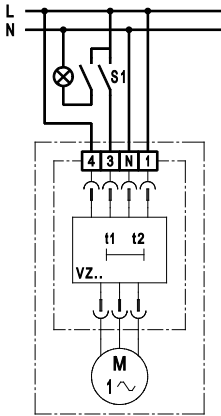
\* **With switch S2**, the fan can also for example, be switched off in the case of malfunctions or reverse polarity voltages, independent of the room humidity.

**ER 60 G, ER 100 G****ER 60 G, ER 100 G**

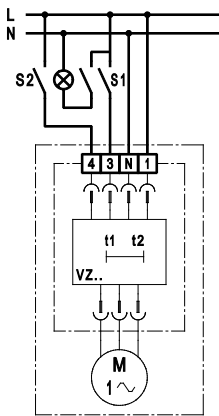
The ER 60 G and/or the ER 100 G can be operated in base or full load operation as required.

- S1** Switch for base load operation: Continuous operation at a lower speed with lower air volume.
- S2** Switch for full load operation and room lighting: When the room is being used, the unit can be switched to high speed with full volumetric flow.

### ER 60 GVZ, ER 100 GVZ



Standard switching



Switching options

### ER 60 GVZ, ER 100 GVZ

#### Standard switching:

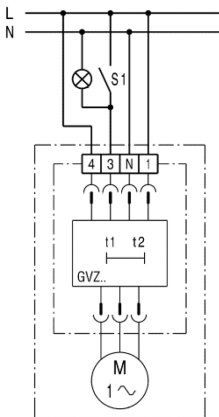
Fan always runs at base load. When the room is in use ( $S1=On$ ), the fan switches automatically to full load after approx. 50 seconds.

#### Switching option

When the room is in use ( $S1=On$ ), the fan switches automatically to full load after approx. 50 seconds. Base load operation can be switched off manually with switch S2.

### ER 60 GVZC EC

#### Standard switching



### ER 60 GVZC EC

#### Standard switching

The unit permanently runs at least at base load. The base load level cannot be switched off manually.

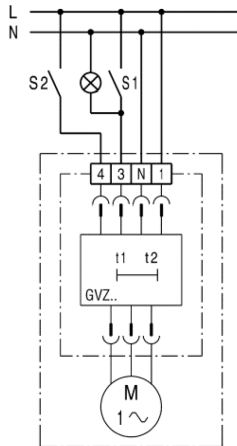
If the room lighting is switched on ( $S1 = On$ ), the fan switches to nominal load after the preset start delay of 0 to three minutes which can be set using a jumper.

After the room lighting is switched off, the fan continues running for an overrun time of up to 15 minutes. The overrun time can be set to between 0 and 15 minutes using a jumper. Then the fan switches back to the base load level.

For setting the start delay and overrun time → chapter 7.1. Note the overrun time stated on the general building approval.

**ER 60 GVZC EC**

Switching option

**ER 60 GVZC EC****switching option**

The base load can be switched on and off with S2.

- Case 1: Fan is stationary. If S2 is activated (S2 = On), the unit switches immediately to base load, without considering the preset start delay. If S2 is activated again, (S2 = Off), the unit switches immediately off, without considering the preset overrun time.
- Case 2: The unit is running at base load level (S2 = On). If the room lighting is switched on (S1 = On), the fan switches to nominal load after the preset start delay of 0 to three minutes which can be set using a jumper.

After the room lighting is switched off, the fan continues running for an overrun time of up to 15 minutes. The overrun time can be set to between 0 and 15 minutes using a jumper. Then the fan switches back to the base load level.

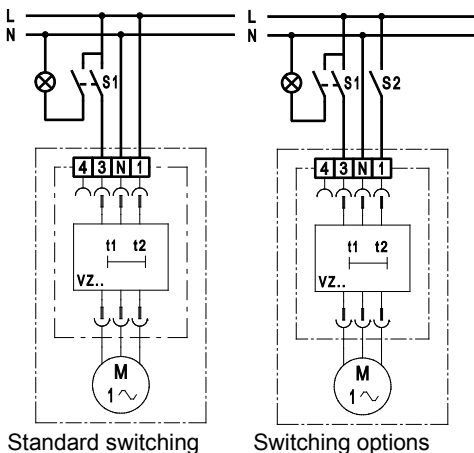
For setting the start delay and overrun time → chapter 14.1. Note the overrun time stated on the general building approval.

- Case 3: Fan is stationary. If the room lighting is switched on (S1 = On), the fan switches to nominal load after the preset start delay of 0 to three minutes which can be set using a jumper.

After the room lighting is switched off, the fan continues running for an overrun time of up to 15 minutes. The overrun time can be set to between 0 and 15 minutes using a jumper. Then the fan switches off.

For setting the start delay and overrun time → chapter 14.1. Note the overrun time stated on the general building approval.

### ER 60 I, ER 100 I



### ER 60 I, ER 100 I

Interval switching automatically controls the switching-on of the fan after the defined interval time, if the fan has not been switched on during this time. The interval times can be set to between 1 and 15 hours. The switch-on time is 10 minutes.

In the case of manual switch-on, the start delay is approx. 50 seconds and the overrun time is 10 minutes. The interval function can be switched off → chapter 14.1.

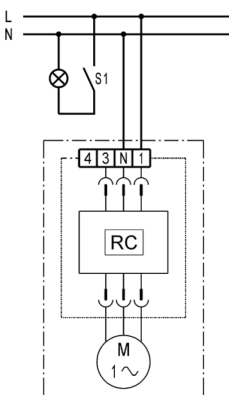
#### Standard switching:

The fan starts up approximately 50 seconds after the room lighting is switched on. The fan has an overrun time of approximately 10 minutes after switching off.

#### Switching option

The fan starts up approx. 50 seconds after switching on the room lighting (with switch S1 and S2).

### ER 100 RC



### ER 100 RC

The fan can be switched on and gradually upshifted using a radio switch.

#### Use with RLS RC

Depending on the RLS RC setting, the fans adopt defined operating statuses.

If using an additional radio switch, the operating stage selected by this switch is active for 30 minutes.

Then the operating stage selected by the RLS RC is adopted. The base load is permanently activated in the factory using a DIP switch.