

Exhaust air system / Recessed-mounted,  
according to DIN 18017-3



ER / CENTRO Model series

## Mounting and Operating Instructions



### Exhaust air system ER/CENTRO Model series

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**DANGER**

##### **Danger to life!**

Non-observance can lead to death or serious bodily injuries.



**CAUTION**

##### **Danger of injury / Damage to property!**

Non-observance can lead to minor or more serious bodily injuries or property damage.

#### Intended use

- This unit is only intended for domestic use and similar purposes.
- For deployment in single air extraction systems (ER) and central ventilation units (Centro) with a common main duct.
- For ventilation of windowless bathrooms, WCs and combined kitchen/ living rooms.
- The transporting of air, where the air medium has a maximum temperature of +40°C, is permitted.
- For recessed-mounted installation in walls or ceilings.
- Operation is only permitted if installation has been undertaken correctly.

#### Predictable misuse

The unit should not be used:

- Close to flammable materials, liquids or gases.
- For conveying chemicals, aggressive gases or vapours.
- In areas subject to explosion hazards.

#### Combinations

The recessed-mounted exhaust air systems consist of a building shell set and a final assembly set.

The building shell set housing units are installed during the building phase, electrically wired and fitted with a plaster protective cover. Three recessed-mounted housing versions in different designs are available.

During the interior building work, the final assembly set is installed, consisting of a fan unit with internal cover. Alternatively, a Centro exhaust air element can be installed.

WC odour extraction with simultaneous room ventilation can be implemented using UPD and UP/G housing units. In this case, an ER-AS extraction socket (Ø 70) is plugged into the second room connection on the housing and a connection is established with the WC flushing pipe.

#### **Acknowledgements:**

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### Safety instructions

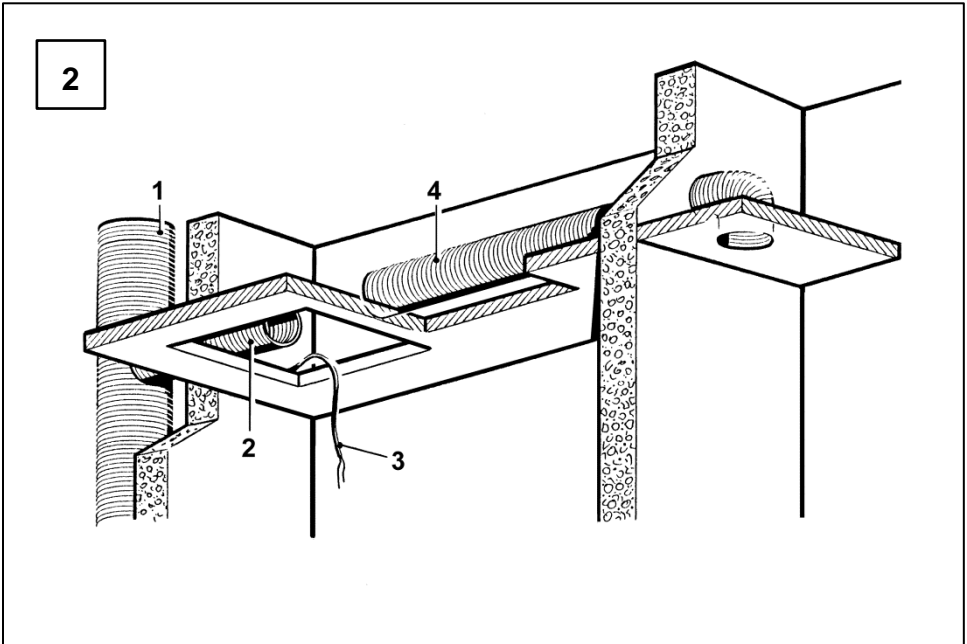
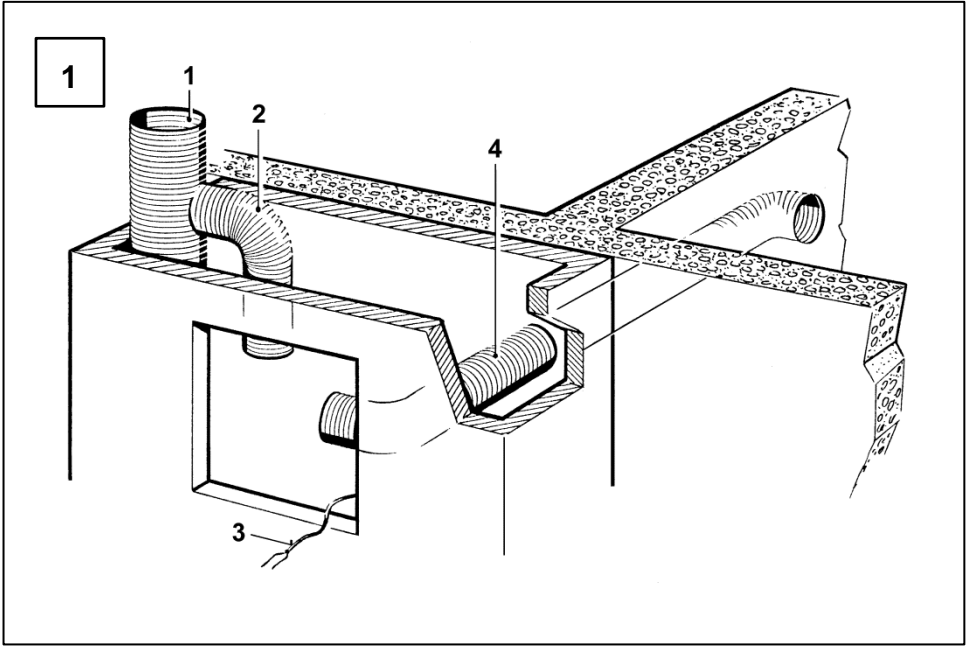
Before installing or commissioning the exhaust air system, you should read these instructions completely and thoroughly. Hand these instructions to the owner for safe-keeping, once final assembly is complete.

- Installation should only be carried out by specialists who have the necessary knowledge and experience in ventilation engineering.
- The unit must not be used as a toy.
- Only qualified electricians are permitted to work on electrical connections and repairs.
- With electrical and equipment installation the relevant regulations must be observed. In Germany, especially DIN VDE 0100, with the corresponding parts (in rooms with a bath or shower for example, this would be Part 701) and the accident prevention regulations.
- Specifications in the "Operating Conditions" chapter and the technical data on the rating plate must be adhered to.
- Disconnect the unit completely (all poles) from the power supply before removing the internal cover and position a visible warning sign to avoid the unit being accidentally switched back on, e.g. prior to repair work being carried out.
- Check the filter regularly for dirt and replace it every 3 to 6 months.
- Modifications and alterations to the unit are not permitted and release Maico from any guarantee obligations and liability.
- In line with the general directives of the German Institute for Building Technology, each time the unit is used or deployed, a copy of the following approval notice must be available at the point of use.
- "General building approval for shut-off devices against fire spread in ventilation ducts with a common exhaust ventilation ducts, in accordance with the German DIN 18017-3". The approval notice will be supplied on demand. Please refer to the sticker on the recessed-mounted housing for the approval number.

### Operating conditions

- **Installation location**  
The fan is approved for wall or ceiling installations in bathrooms, WCs and combined kitchen/living rooms.
- **Degree of protection, protection class**  
The exhaust air systems fulfil the degree of protection specified on the rating plate only if they have been installed correctly and if the power cable is fed in correctly at the appropriate location in the housing seal. The degree of protection is only guaranteed if the internal cover is closed and locked into position (in the case of wall installation, the MAICO name should be on the bottom-right).
- **Shutter**  
The exhaust air system is fitted with a metal shutter with a soldered strut, to provide fire protection. Systems that don't require fire protection on the unit have a plastic shutter. Only housing units appropriate to the application may be used.
- **Temperatures**  
The permissible maximum temperature of the air medium is +40 °C.
- **Rated voltage, power frequency**  
Exhaust air systems may only be operated at the rated voltage and power frequency shown on the rating plate.
- **Fixed electrical supply cable**  
Exhaust air systems may only be connected to a fixed electrical supply cable, max. 1.5 mm<sup>2</sup>. This must be equipped with a mains isolation unit with contact openings of at least 3 mm at each pole.
- **Air-ventilated fireplaces**  
Sufficient supply air intake must be ensured during operation with air-ventilated fireplaces. The pressure difference between the location of the fireplace and the environment may not be more than 4 Pa.
- **Motors with thermal overload protection.**  
Motors switch themselves off in the case of thermal overload and then back on again automatically after they have cooled down.

Installation preparations



## Installation preparations

Figure 1 and 2

- 1 Main duct: Folded spiral-seams duct
- 2 Connecting duct: SFR 75 or SFR 80 flexible steel duct or AFR 75 or AFR 80 flexible aluminium duct (depending on the unit type, see General Building Approval)
- 3 Power cable
- 4 Suction duct for second room connection: SFR 75 flexible steel duct or AFR 75 or AFR 80 flexible aluminium duct (depending on unit type (see General Building Approval))



CAUTION

**Damage to unit, malfunctioning in the event of corrosion damage from mortar!** Wrap connecting ducts [2] in PVC adhesive tape to protect against corrosion inside the masonry.



CAUTION

**Malfunctioning due to improper installation. Shutter does not open properly!** Only use the steel bolts (X1) where the exhaust socket tapers. The steel bolts may only penetrate into the socket to a maximum depth of 5 mm.



DANGER

**Danger of fire spread in the case of incorrect connecting ducts on ER-UPB and ER-UPD housings when installed outside of ventilation shafts ( also see General Building Approval).** A steel folded spiral-seams duct must be used for the main duct [1]. SFR 75 or SFR 80 flexible steel duct or steel folded spiral-seams ducts (Ø 75 or Ø 80) must be used for connecting ducts [2].

### Installation instructions

- Use mortar from the mortar group II or III in accordance with DIN 1053-1 when plastering.
- Regulating devices are not permitted.
- The curve in the elbows in the connecting duct [2] may not exceed 90° and may only be installed vertically.

### Wall breakthroughs for connecting ducts

	Brickwork or cement	Fibre- silicate boards
Ø 75	125 mm	External duct diameter
Ø 80	130 mm	(press fit)

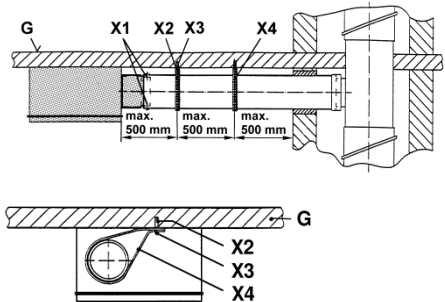
## Wall installation (Fig. 1)

- Create a cut-out in the shaft or a wall facing for the housing unit.
- Lay the main duct [1].
- Lay the connecting duct [2], ensuring you have the correct duct lengths! Permitted cables: Connection diameter Ø 75 and Ø 80 mm, max. 2 m long and 2 90° elbows.
- Feed the power cable [3] inside the shaft.

## Ceiling installation (Fig. 2)

Installation preparations, see wall installation.

### Connecting duct Ø 75, Ø 80



**Mounting material X1...X4 must be supplied on site!**

- G Ceiling  
 X1 Steel bolt or steel blind rivet (2 of each)  
 X2/X3 Screw/Dowel  
 X4 Perforated metal strip

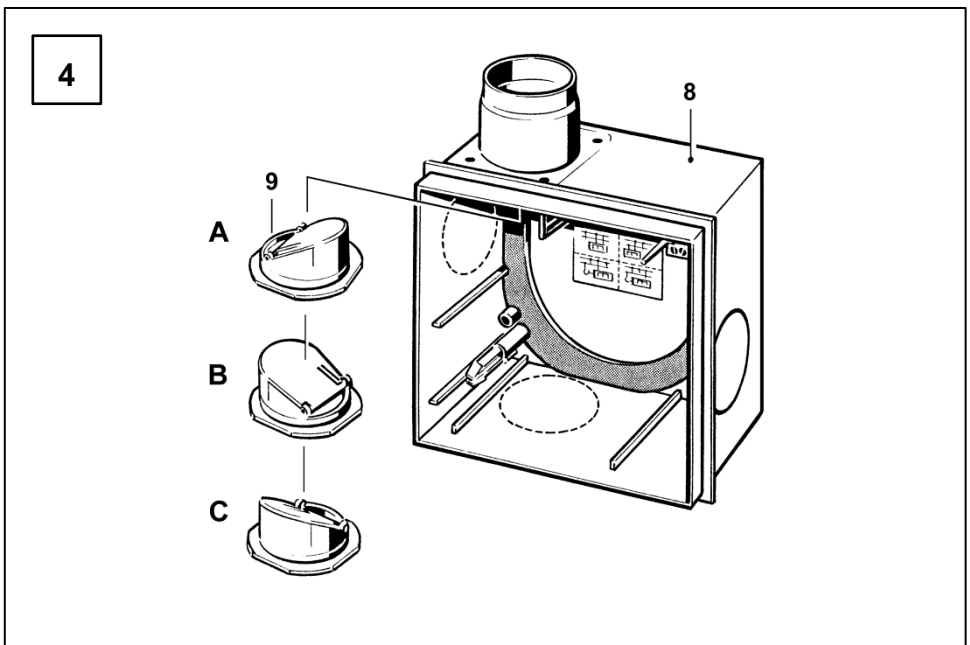
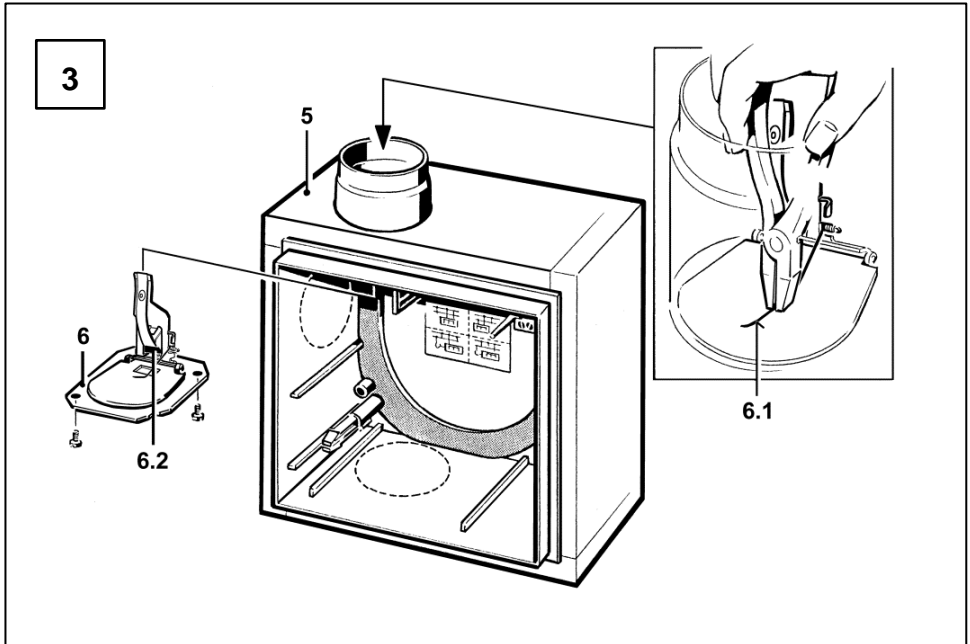
## Second room connection (Fig. 1 and 2)

- Installation preparations, see wall installation.
- Lay additional suction duct [4]. Ensure you have the correct duct lengths.

### Permitted ducts:

Connection diameter Ø 75 mm and Ø 80 mm, max. 2 m long and 2 90° elbows.

## Installation preparations



## Shutter

### Figure 3 and 4

- 5 ER-UPB housing (Fig. 3)
- 6 Metal shutter
- 6.1 Yoke spring
- 6.2 Soldered strut
- 7 ER-UPD housing (no picture)
- 8 ER-UP/G housing (Fig. 4)
- 9 Plastic shutter

**i** **Metal shutter (Fig. 3):**  
ER-UPD and ER-UPD housing  
**Plastic shutter (Fig. 4):**  
ER-UP/G housing

**i** **The metal shutter is permanently closed if there is no solder strut [6.2]!**  
Check that the solder strut is in place before the installation.

**i** **Unpleasant odours from the main duct. Plastic shutter does not close tightly in cases of improper installation!** Check the correct installation position and functioning of the plastic shutter before final assembly.

### ER-UPB and ER-UPD housing with metal shutter – wall installation

- If the housing is installed with the air outlet direction upwards, the yoke spring [6.1] on the metal shutter [6] must be removed. To do this, pull the yoke spring out using a pair of pliers as shown in the display detail.
- If the housing is turned and installed with the air outlet direction to the right or left, no modification should be made to the metal shutter [6].

### ER-UPB and ER-UPD housing with metal shutter – ceiling installation

- No modifications should be made to the metal shutter in the case of ceiling installation.

### ER-UP/G housing with plastic shutter – wall installation

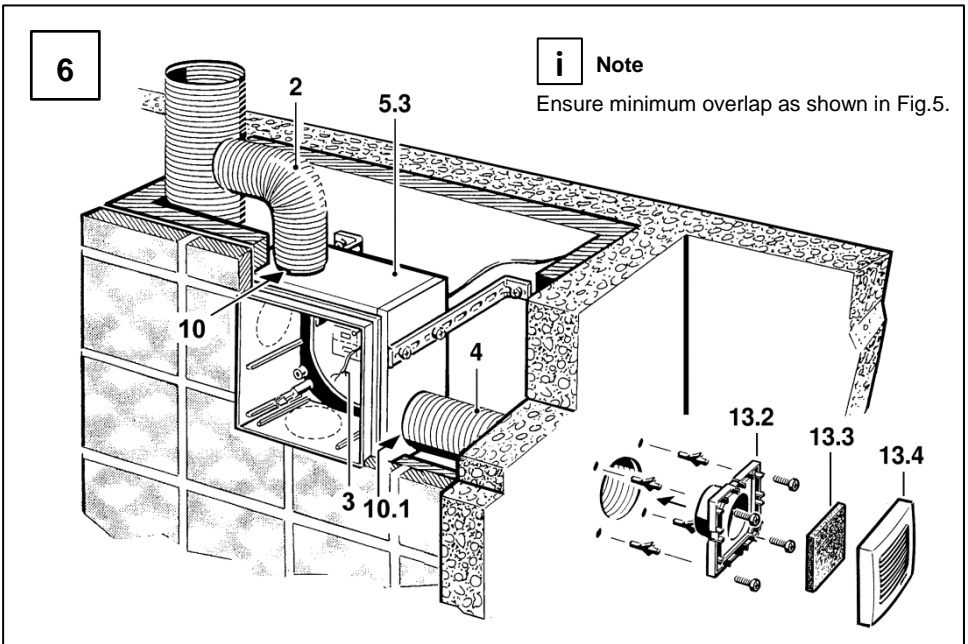
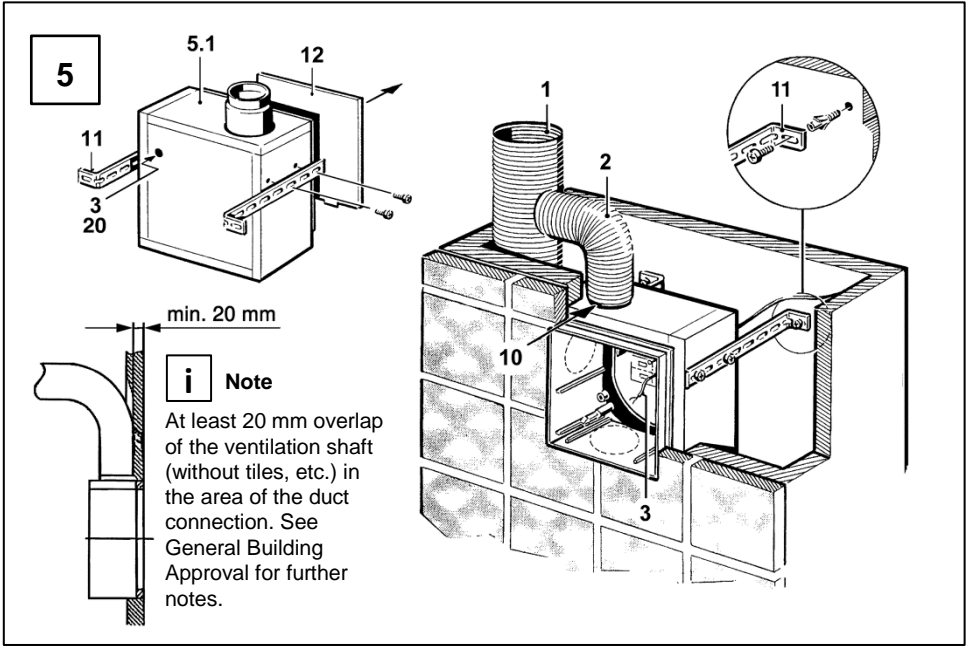
Depending on the installation position, the plastic shutter [9] must be installed in the outgoing air sockets of the ER-UP housing unit as follows, so that the shutter closes tightly.

- Air outlet direction upwards, **see Fig. 4C:**  
Do not carry out any modifications. The shutter is fitted correctly ex-factory.
- Air outlet direction to the right, **see Fig. 4A:**
  - In this case, pull the shutter downwards out of the outgoing air sockets.
  - Turn the shutter by 90°.
  - During installation, make sure that the shutter is pushed in to the outgoing air sockets as far as it will go.
- Air outlet direction to the left, **see Fig. 4B:**
  - In this case, pull the shutter downwards out of the outgoing air sockets.
  - Turn the shutter by 90°.
  - During installation, make sure that the shutter is pushed in to the outgoing air sockets as far as it will go.

### ER-UP/G housing with plastic shutter – ceiling installation

- Air outlet direction as shown in **Fig. 4C:**  
No modifications need to be made. The shutter is fitted correctly ex-factory.

# Building shell set ER-UPB housing – wall installation





**ER-UPB housing:** For wall installation, when deployed with fire protection.

**Features of the ER-UPB housing units:**

- Fire protection housing (asbestos-free)
- Metal outgoing air socket with metal shutter and shut-off device against fire spread
- For domestic kitchens, bathrooms and WCs

**Figure 5 and 6**

- 1 Main duct
- 2 AFR 75 or AFR 80 flexible aluminium connecting duct
- 3 230 V~ power cable
- 4 SFR 75 or SFR 80 flexible steel suction duct
- 5 ER-UPB housing:
  - 5.1 ER-UPB housing, standard
  - 5.2 ER-UPB/L housing with additional intake sockets on the left for second room connection (no picture)
  - 5.3 ER-UPB/R housing with additional intake sockets on the right for second room connection (no picture)
  - 5.4 ER-UPB/U housing with additional intake sockets underneath for second room connection (no picture)
- 10 Metal outgoing air socket with metal shutter and shut-off device against fire spread
  - 10.1 Metal intake sockets
- 11 UPM 60/100 mounting support
- 12 Plaster protective cover
  - 13.2 Connection socket
  - 13.3 Filter mat
  - 13.4 Internal grille
- 20 Cable grommet

### **i** Installation instructions

- Install housing [5] with air outlet direction (outgoing air socket [10]) upwards, to the right or to the left.
- If the housing is installed with the air outlet direction upwards, the yoke spring on the metal shutter **must be** removed (see page 7).
- Important advice about plastering!
  - Max. compensable plaster overshoot = 7 mm.
  - Max. protruding housing frame, compensable with spacing frame DR 60/100 = 20 mm.
  - 50...100 mm recessed, compensable with two-part ER-MR wall frame.
  - UPB housing must be plastered air-tight to the shaft so that no air leakage can be sucked out of the shaft.
  - ER-AR Masking frame covers the joint between the recessed-mounted housing and the wall.

- **Second room connection only permitted with ER-UPB/R, ER-UPB/L or ER-UPB/U housings.**
- **A second room connection with exhaust air elements Centro-E/Centro-M and also with WC odour extraction is not permitted.**

### Wall installation (Fig. 5)



**CAUTION**

**Malfunctioning (air leakage) through the use of fastening screws of the wrong type or that are too long.** Fixing screws may not penetrate into the housing. Use the screws provided.

- Remove the plaster protective cover [12] from the housing [5].
- Install the mounting support [11] onto the ER-UPB housing with the supplied screws.
- Mark the positions of the fixing holes for the mounting support on the back wall of the shaft, drill the holes and insert dowels. Suitable mounting material must be supplied on site.
- Feed the power cable [3] into the housing [5] from the back, using the cable grommet [20].
- Insert the ER-UPB housing with the mounting support into the shaft and fix it to the rear wall of the shaft.
- Connect the connecting duct [2] tightly to the outgoing air socket [10].
- Make the electrical connection, see page 17.
- Insert the plaster protective cover [12] in the housing.
- Finally, plaster the ER-UPB housing so that the front edge is flush, taking into account the thickness of any tiles (see General Building Approval).

### Second room connection (Fig. 6)

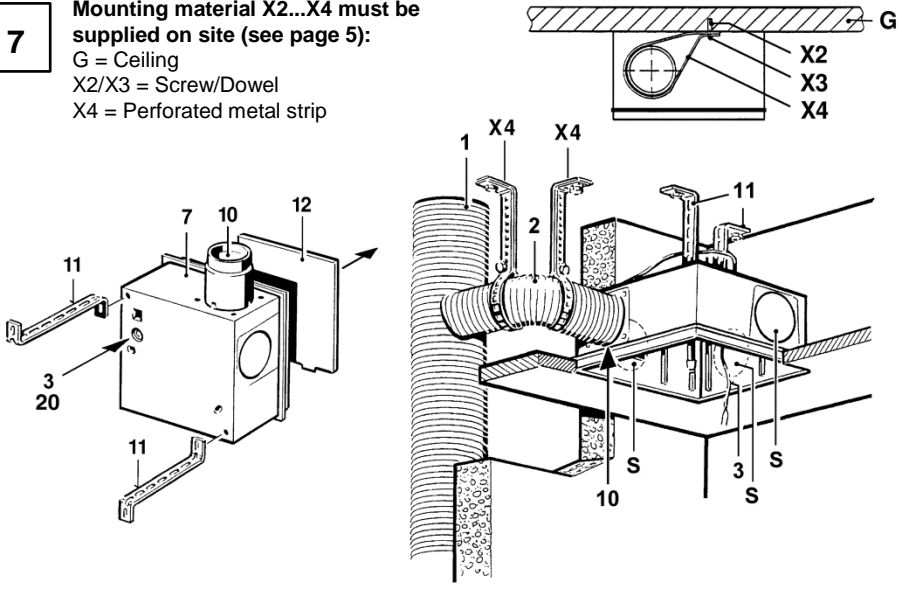
- **Installation, see wall installation.**
- After connecting the duct [2], connect the suction duct [4] tightly with the intake socket on the housing [5.2] or [5.3].
- Drill the fixing holes for the second room connection kit and insert dowels.
- Connect the connection socket [13.2] with the other end of the suction duct [4], so that it seals tightly.
- Mount the connection socket [13.2] on the wall.
- Insert the filter mat [13.3] and locate the internal grille [13.4] in the correct position.



Keep the supplied regulating plate somewhere safe. This will be needed when installing the fan unit (see page 23).

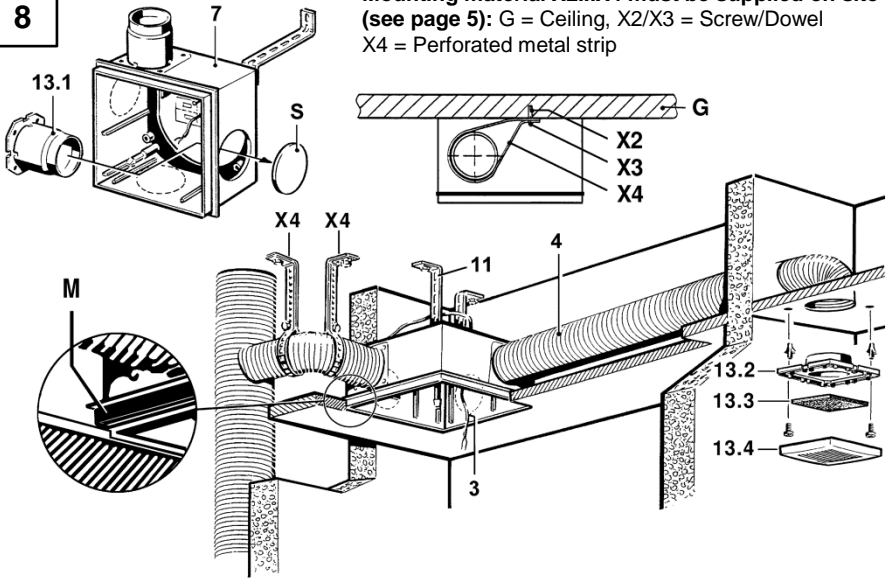
7

Mounting material X2...X4 must be supplied on site (see page 5):  
 G = Ceiling  
 X2/X3 = Screw/Dowel  
 X4 = Perforated metal strip



8

Mounting material X2...X4 must be supplied on site (see page 5): G = Ceiling, X2/X3 = Screw/Dowel  
 X4 = Perforated metal strip



**ER-UPD housing:** For ceiling installation, when deployed with fire protection

**Features of the ER-UPD housing units:**

- Metal outgoing air socket with metal shutter and shut-off device against fire spread
- Plastic housing for ceiling installation
- For domestic kitchens, bathrooms and WCs

**Figure 7 and 8**

- 1 Main duct
- 2 SFR 75 or SFR 80 flexible steel connecting duct
- 3 230 V power cable
- 4 SFR 75 or SFR 80 flexible steel suction duct
- 7 ER-UPD housing
- 10 Metal outgoing air socket with metal shutter and fire protection
- 11 UPM 60/100 mounting support
- 12 Plaster protective cover
- 13 Second room connection kit, consisting of:
  - 13.1 Plastic socket
  - 13.2 Connection socket
  - 13.3 Filter mat
  - 13.4 Internal grille
- 20 Cable grommet
- S Housing segment for second room connection
- M ER-MO sponge rubber
- X4 Perforated metal strip

**i** Installation instructions

- **Insert the housing without twisting it, otherwise**
  - the fan unit cannot lock correctly into place in the recessed-mounted housing.
  - the degree of protection stated on the rating plate can no longer be guaranteed.
- **Important advice about plastering!**
  - Max. compensable plaster overshoot = 7 mm.
  - Max. protruding housing frame, compensable with spacing frame DR 60/100 = 20 mm.
  - 50...100 mm recessed, compensable with two-part ER-MR wall frame.
  - ER-UPD housing must be plastered air-tight to the shaft so that no air can be sucked out of the shaft (**see item M**).
  - ER-AR Masking frame covers the joint between the recessed-mounted housing and the wall.
- Use MAICO sponge rubber ER-MO (item M) for acoustic decoupling of resonant thin ceilings; see Accessories.
- It is permitted to connect a WC odour extraction.

- It is not permitted to use a second room connection with Centro-E/Centro-M exhaust air elements.

**Ceiling installation (Fig. 7)**

- Remove the plaster protective cover [12] from the housing [7].
- In the case of non-suspended ceilings, the housing is mounted directly on the ceiling.
- In the case of suspended ceilings, the housing is mounted using the mounting support [11]. To do this, cut the mounting support to the required length, bend it into shape and fix it to the housing with the supplied Spax screws.
- Mark on the ceiling where the housing fixing holes have to be drilled, drill them and insert dowels. The appropriate mounting material must be supplied on site.
- Feed the power cable [3] into the housing [7] from the back, using the cable grommet [20].
- Locate the ER-UPD housing at the desired position and fix it to the ceiling.
- Fix the connecting duct [2] to the outgoing air socket [10] with 2 steel screws or 2 steel blind rivets (please also refer to General Building Approval). Then make sure the joint is sealed well.
- Make the electrical connection, see page 17.
- Insert the plaster protective cover [12] in the housing again.

**Second room connection (Fig. 8)**

- First make a cut-out at the marking on the left, right or lower housing segment "S" using a suitable knife.
- Insert the plastic socket [13.1, where the edge of the socket must engage with the housing wall.

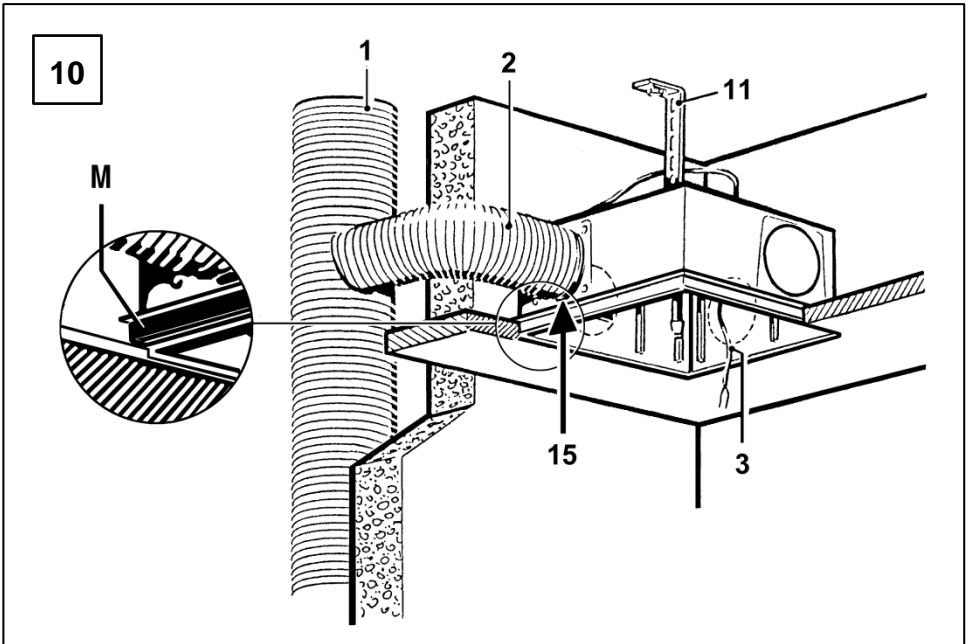
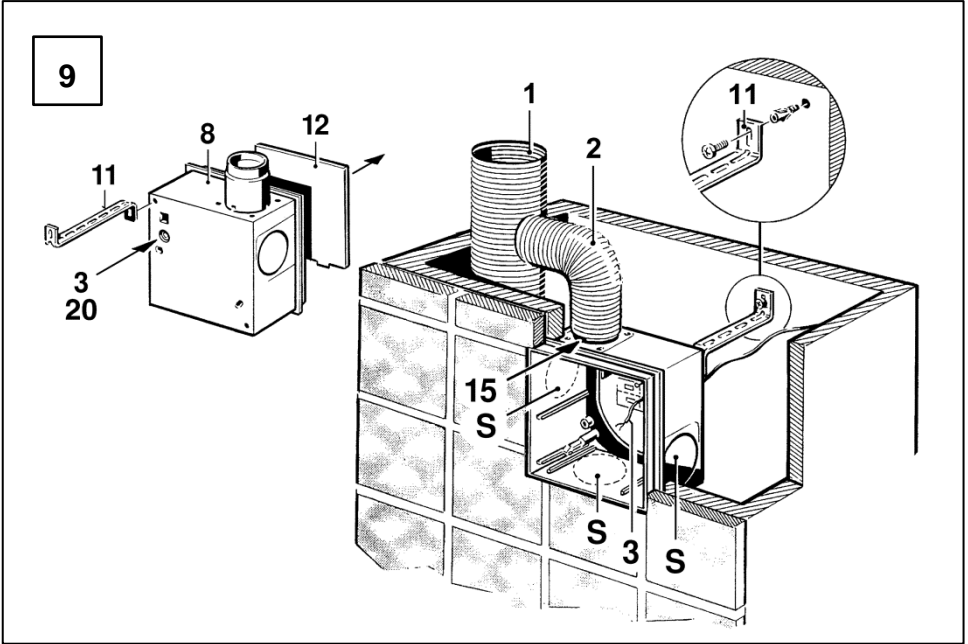


**CAUTION**

**Damage to unit by improper installation of the plastic sockets. Protection class is no longer guaranteed!** Remove the housing seal before inserting the plastic socket [13.1] and then reposition it correctly afterwards.

- Carry out the installation, s. ceiling install. above.
- After connecting duct [2], connect the suction duct [4] with plastic socket [13.1] so that it seals tightly.
- Drill the fixing holes for the second room connection kit and insert dowels.
- Connect the connection socket [13.2] with the other end of the suction duct [4], so that it seals tightly.
- Mount the connection socket [13.2] on the wall.
- Insert the filter mat [13.3] and locate the internal grille [13.4] in the correct position.

Building shell set ER-UP/G housing – wall and ceiling installation



### ER-UP/G housing:

For wall or ceiling installation, when deployed without fire protection.

#### Features of the ER-UP/G housing units:

- Plastic outgoing air socket with plastic shutter
- For domestic kitchens, bathrooms and WCs

#### Figure 9 and 10

- 1 Main duct
- 2 Flexible aluminium connection duct AFR 75 or AFR 80
- 3 Power cable
- 8 ER-UP/G housing unit
- 11 UPM 60/100 mounting support
- 12 Plaster protective cover
- 15 Plastic outgoing air socket with plastic shutter
- 20 Cable grommet
- S Housing segment for second room connection
- M ER-MO sponge rubber



#### Installation instructions

- **Insert the housing without twisting it, otherwise**
  - the fan unit cannot lock correctly into place in the recessed-mounted housing.
  - the degree of protection stated on the rating plate can no longer be guaranteed.
- **Important advice about plastering!**
  - Max. compensable plaster overshoot = 7 mm.
  - Max. protruding housing frame, compensable with spacing frame DR 60/100 = 20 mm.
  - 50...100 mm recessed, compensable with two-part ER-MR wall frame.
  - UP/G housing must be plastered air-tight to the shaft so that no air can be sucked out of the shaft.
  - ER-AR masking frame covers the joint between the recessed-mounted housing and the wall.
- Use MAICO sponge rubber ER-MO (item M) for acoustic decoupling of resonant thin ceilings; see Accessories.

#### Wall installation (Fig. 9)

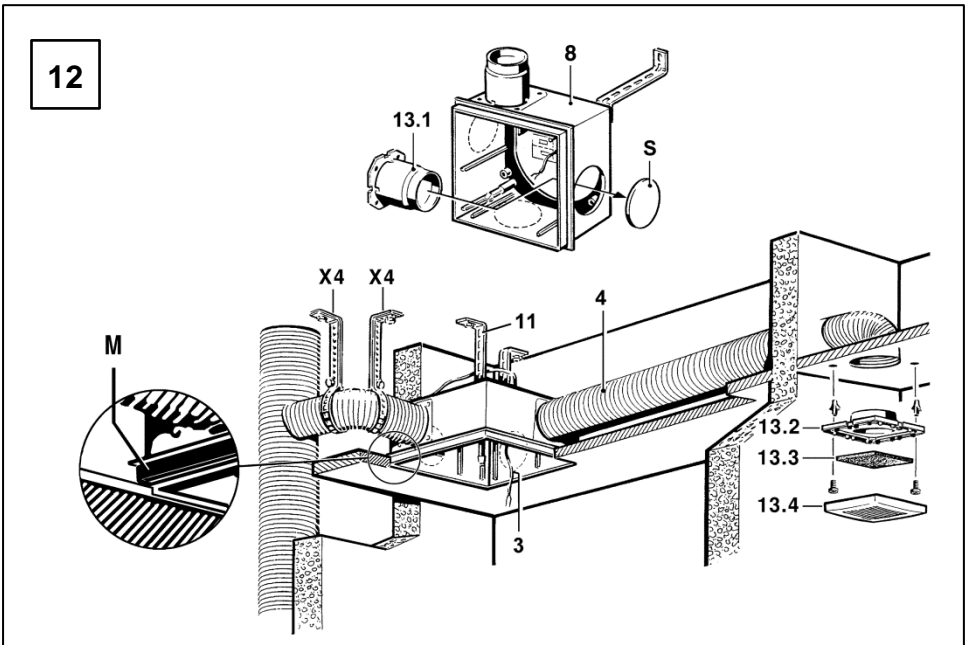
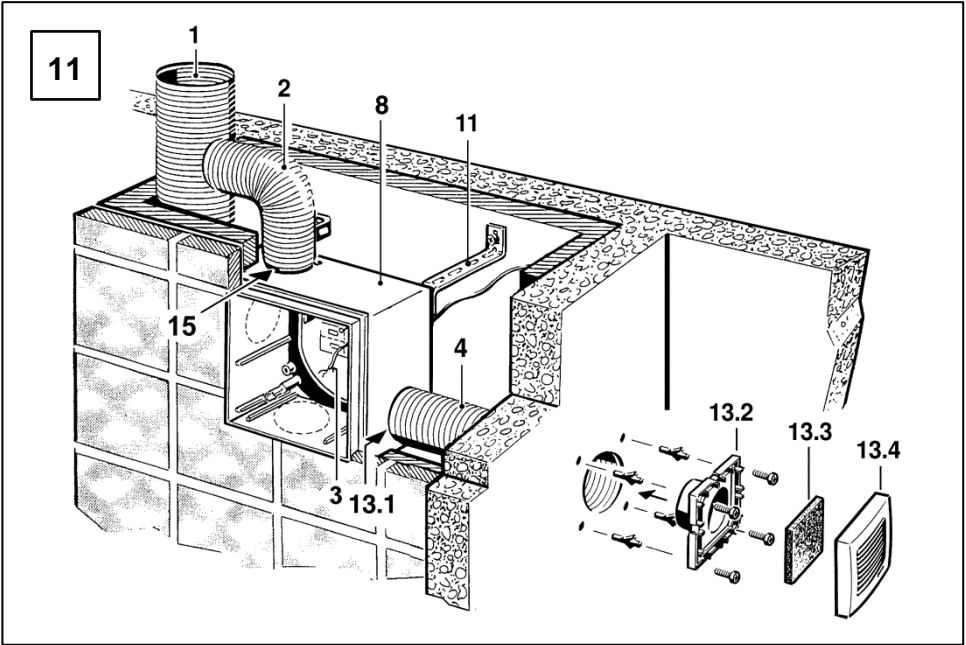
- Remove the plaster protective cover [12] from the housing [8].

- Cut the mounting support to the required length, bend it into shape and fix it to the housing with the supplied fixing screws.
- Mark the positions of the fixing holes for the mounting support on the back wall of the shaft, drill the holes and insert dowels. Suitable mounting material must be supplied on site.
- Feed the power cable [3] from the rear of the housing through the cable grommet [20] (see Electrical Connection, page 17).
- Insert the housing with the mounting support [11] into the shaft and fix it to the rear wall of the shaft.
- Connect the connecting duct [2] tightly to the outgoing air socket [15].
- Make the electrical connection (see page 17).
- Insert the plaster protective cover in the housing.
- Finally, plaster the housing so that the front edge is flush, taking into account the thickness of any tiles (see General Building Approval).

#### Ceiling installation (Fig. 10)

- Remove the plaster protective cover [12] from the housing [8].
- In the case of non-suspended ceilings, the housing is mounted directly on the ceiling.
- In the case of suspended ceilings, the housing is mounted using the mounting support [11]. To do this, cut the mounting support to the required length, bend it into shape and fix it to the housing with the supplied screws.
- Mark the positions of the fixing holes for the mounting support on the ceiling, drill the holes and insert dowels. Suitable mounting material must be supplied on site.
- Feed the power cable [3] from the rear of the housing through the cable grommet [20] (see Electrical Connection, page 17).
- Fix the ER-UP/G housing to the ceiling with or without the mounting support as appropriate.
- Connect the connecting duct [2] tightly to the outgoing air socket [15].
- Make the electrical connection, see page 17.
- Insert the plaster protective cover in the housing.
- Finally, plaster the housing so that the front edge is flush, taking into account the thickness of any tiles (see General Building Approval).

Building shell set ER-UP/G housing – Second room connection



## Second room connection

### Figure 11 and 12

- 1 Main duct
- 2 Flexible aluminium connection duct  
AFR75 or AFR 80
- 3 Power cable
- 4 Flexible aluminium suction duct  
AFR 75 or AFR 80
- 8 ER-UP/G housing unit
- 11 UPM 60/100 mounting support
- 13 Second room connection kit, consisting of:
  - 13.1 Plastic socket
  - 13.2 Connection socket
  - 13.3 Filter mat
  - 13.4 Internal grille
- 15 Plastic outgoing air socket with plastic shutter
- S Housing segment
- M ER-MO sponge rubber
- X4 Perforated metal strip

### Installation instructions

- **The following are not permitted:**
  - A second room connection with the ER 60 basic model (all designs).
  - A second room connection or the connection of a WC odour extraction with Centro exhaust air elements.
- Ventilating other rooms in a flat simultaneously using the fan in the bathroom or lavatory **is not permitted.**
- **It is permitted** to connect a WC odour extraction to all ER models.
- Insert the housing without twisting it, otherwise:
  - the fan unit cannot lock correctly into place in the recessed-mounted housing.
  - the degree of protection stated on the rating plate can no longer be guaranteed.
- In the case of wall installation with the air outlet direction (outgoing air socket) to the left or the right, the plastic shutter must be turned so that it closes tightly in the installation position, see Fig. 4.

### Procedure

- First make a cut-out at the marking on the left, right or lower housing segment "S" using a suitable knife, see Fig.12.
- Plug in the plastic socket [13.1]. The edge of the socket must click into place on the wall of the housing.



**CAUTION**

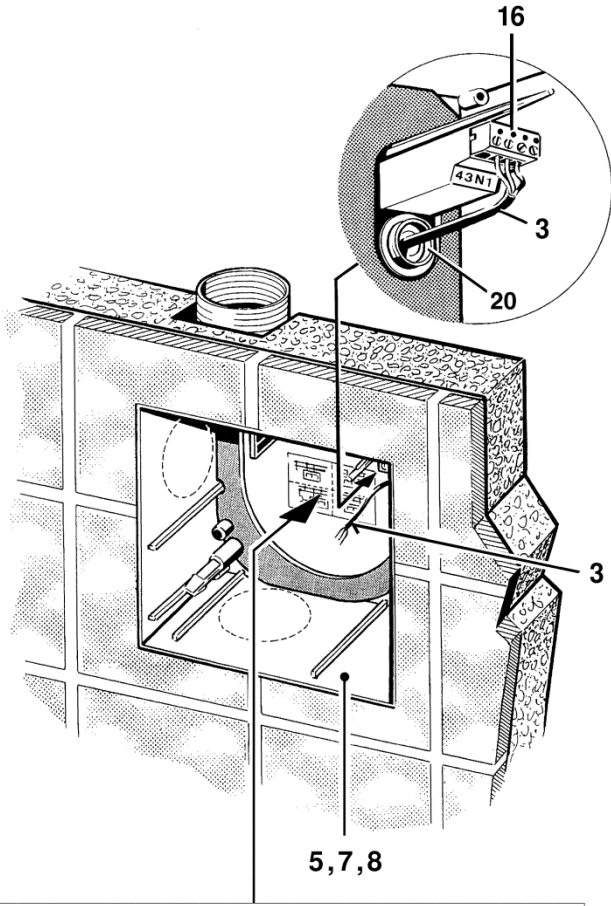
**Damage to unit by improper installation of the plastic socket. Protection class is no longer guaranteed!** Remove the housing seal before inserting the plastic socket [13.1] and then reposition it correctly afterwards.

- Install ER-UP/G housing [8] as per wall installation (Fig. 9) or ceiling installation (Fig. 10).
- Then carry out the second room connection as per Fig. 11 or Fig. 12 (see page 9 for wall installation and page 11 for ceiling installation).



When ventilating a second room, locate the plastic regulating plate (Fig. 14, Item 19.2) under the locking tabs to the side of the intake grille, see second room accessory ER-ZR.

13



**Netz-Zuleitungslänge im Gehäuse max.7cm!**  
 Schutzleiter und nicht benötigte Adern abschneiden u. isolieren! — Z

<p>Centro-E 60 100</p>	<p>60G 100G</p>	<p>60VZ, VZC, I 100VZ, VZC, I</p>	<p>60F 100F</p>	<p>60H, GVZ 100H, GVZ</p>	<p>100D</p>	<p>max. 7cm</p>
<p>Bitte Gerätetyp ER... / Centro-E ankreuzen!</p>						



## Electrical connection

Figure 13

- 3 Power cable
- 5 ER-UPB housing
- 7 ER-UPD housing
- 8 ER-UP/G housing
- 16 Terminal box
- 20 Cable grommet
- Z Housing wiring diagram

### Housing wiring diagram [Z]

- Maximum power supply cable length in the housing is 7 cm.
- Cut off and insulate PE conductor and individual cable cores that are not required.
- Please mark with a cross to indicate unit type ER... / Centro-E.



**Danger to life from electric shock.** Switch off mains fuse before working on the fan. Position a warning notice to avoid the unit being accidentally switched back on.



**Electric shock, damage to unit in the event of incorrect installation caused by power cable being too long.** If the cable feed is too long inside the housing, the fan unit cannot be installed correctly. The power cable can be damaged when inserting the fan unit.

**Make sure power cable within the housing is not cut too short, but is also no longer than 7 cm!**



**Damage to unit in the event of short-circuits!** Cut off and insulate PE conductor and individual cable cores that are not required!

### Installation instructions

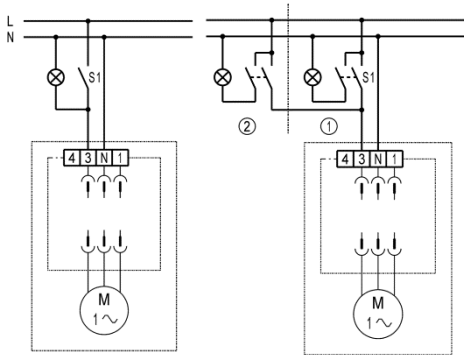
- The electrical connection can be done when the recessed-mounted housing unit is installed.
- Electrical connection is only permitted by trained specialists.

- Make a round break through the cable grommet [20] with a grommet puncher. Select hole diameter ensuring that the mains cable [3] will be tightly enclosed by the grommet.
- Maximum permitted cable cross section, 1.5 mm<sup>2</sup>.
- Only connect the unit to a permanent electrical installation.
- **Important note for models with time delay switch ((VZ, VZ 15, GVZ, VZC, F, I and H fans).**  
Resistance to interference according to EN 55014-2 depending on pulse shape and energy component 1000 to 4000 V. If operating with fluorescent tubes these values can be exceeded. In this case, additional interference suppression measures (L, C components or RC module, protection diodes, varistors) are required.
- **Boards for VZ, VZ 15, GVZ, VZC, F, I and H fans with components at risk from ESD.** Avoid direct touching of the components and contact surfaces.
- The tolerances for the times indicated on page 18 to 21 are: Nominal value +20 %.

### Electrically wiring the housing unit

- Cut the power cable inside the housing to a maximum of 7 cm and connect it to the connection terminal according to the wiring diagram (see following pages).
- Cut off and insulate PE conductor and individual cable cores that are not required!
- **Mark the fan type with a cross on the wiring diagram.** This avoids mistakes being made, e.g. during the final installation of several different fan units.

**ER 60, ER 100, Centro-E**



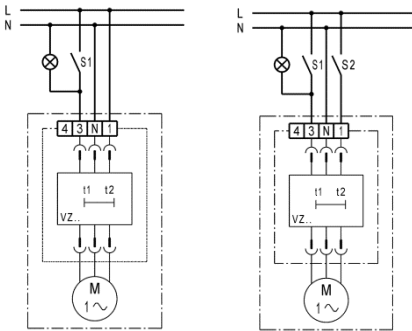
S1 Switch On/Off

S2= Switch On/Off

① = Main room

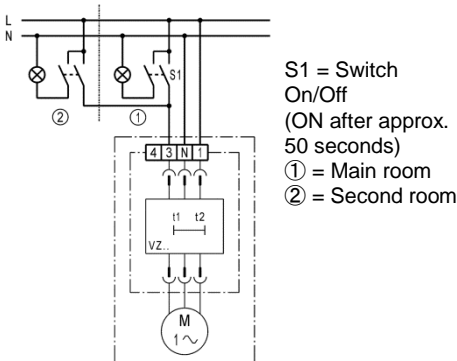
② = Second room

**ER 60 VZ, ER 60 VZ 15,  
ER 100 VZ, ER 100 VZ 15**



Standard switching

Switching option



S1 = Switch On/Off

(ON after approx. 50 seconds)

① = Main room

② = Second room

**Wiring diagrams**

**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.

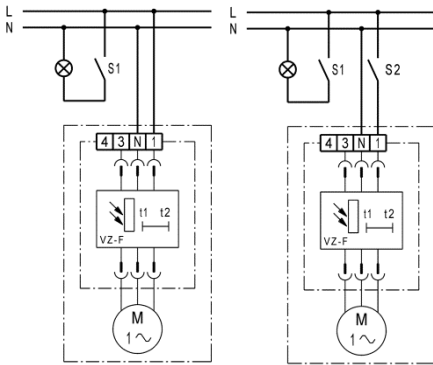
**ER 60 VZC, ER 100 VZC**

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 option

**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.

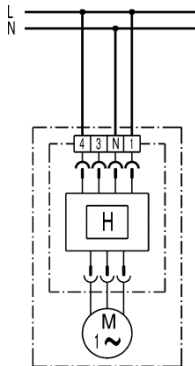
The fan has an overrun time of approximately 6 minutes after the light is switched off. The room must be dark for the fan to switch itself off. Maximum lighting strength at the front of the cover is 0.3 lux.

**Switching option**

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

**ER 60 H, ER 100 H**

Standard switching



**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 26. The switch-off point is approximately 10% under the correspondingly set switch-on point.

**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 mode. The fan switches automatically back to base load operation if the relative humidity falls below the switch-off point.

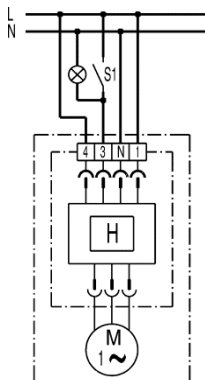
**Switching option 1: Permanent base load operation with pre-defined overrun time**

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.

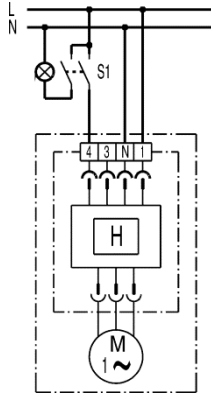
**ER 60 H, ER 100 H**

Switching option 1



### ER 60 H, ER 100 H

Switching option 2



#### Switching option 2:

##### Manual base load operation

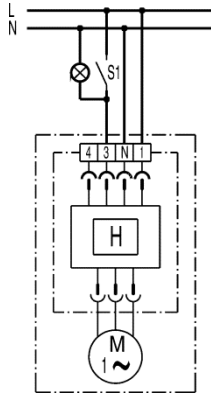
The fan is switched manually to base load operation with switch "S1". Humidity control is active, see Standard Switching. If, after being manually switched with switch "S1", the fan is in:

- 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.

**i** The fan can start up automatically if switch "S1" is open.

### ER 60 H, ER 100 H

Switching option 3



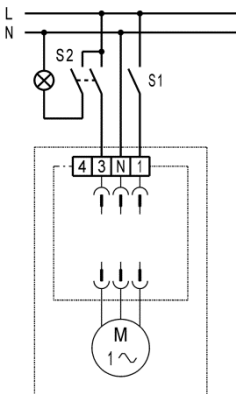
#### Switching option 3: Manual full load operation with pre-defined overrun time.

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.

**i** The fan can start up automatically if switch "S1" is open.

### ER 60 G, ER 100 G

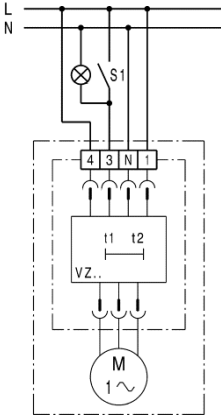


#### ER 60 G, ER 100 G

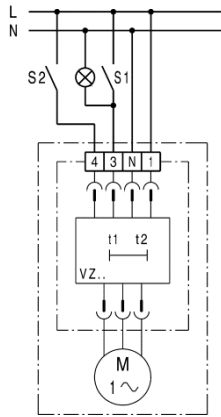
The ER 60 G and/or the ER 100 G can be operated in base or full load operation as required.

- 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 option

**ER 60 GVZ, ER 100 GVZ**

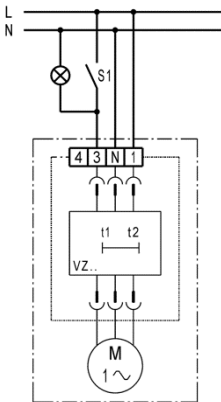
**Standard switching**

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

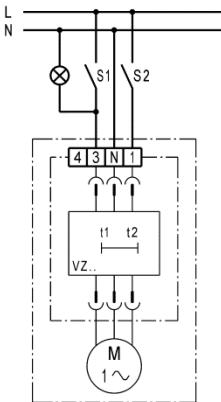
**Switching option**

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 I, ER 100 I**



Standard switching



Switching option

**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. Interval times are definable from 1 to 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. Please refer to page 25 for setting the interval times.

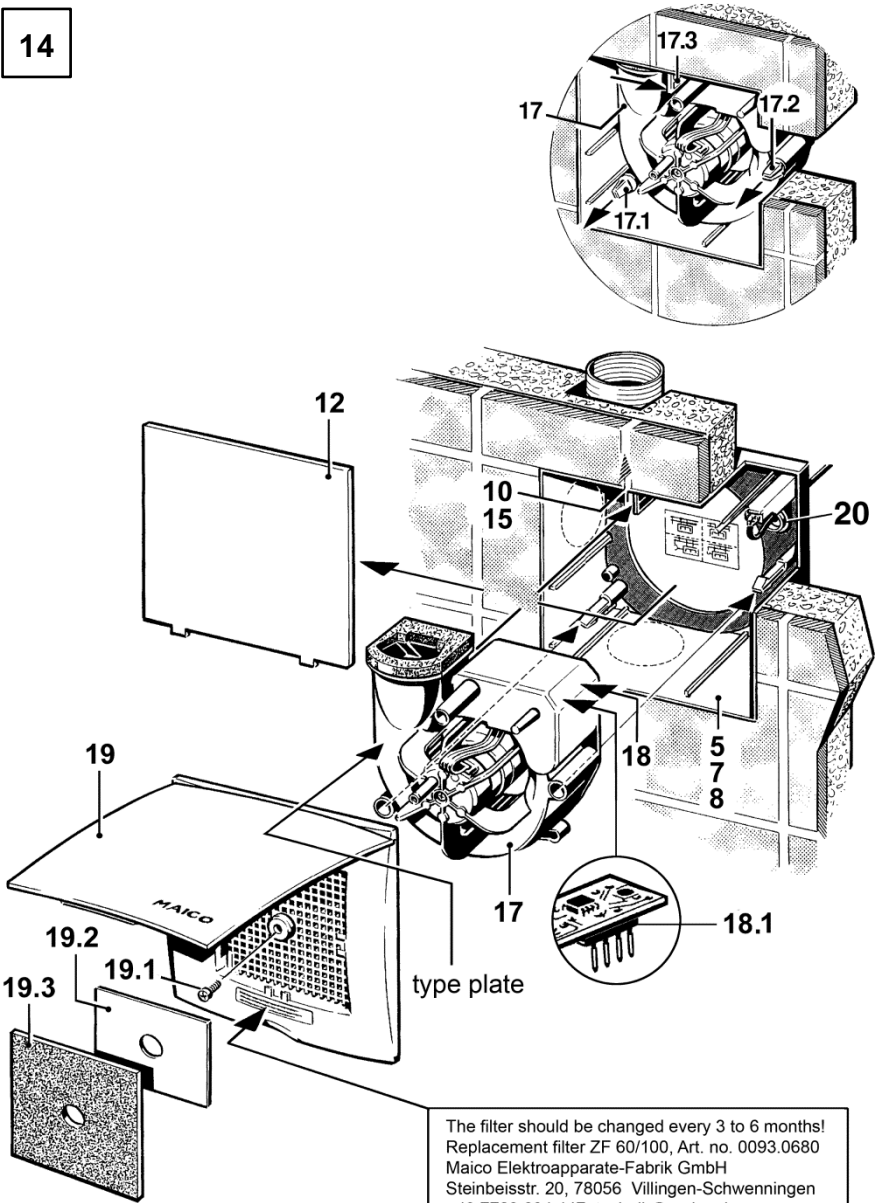
**Standard switching**

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).

14



The filter should be changed every 3 to 6 months!  
Replacement filter ZF 60/100, Art. no. 0093.0680  
Maico Elektroapparate-Fabrik GmbH  
Steinbeisstr. 20, 78056 Villingen-Schwenningen  
+49 7720 694 447, technik@maico.de

## Installing the fan unit

- **Fan unit** consisting of fan and internal cover with filter. For all housings, with and without fire protection.
- **Suitable for ER..fans:**
  - ER 60, ER 100 Base version
  - ER 100 D Three-step switching
  - ER 60 VZ, ER 100 VZ Time delay switching
  - ER 60 VZ 15, ER 100 VZ 15 switching
  - ER 60 VZC, ER 100 VZC
  - ER 60 F, ER 100 F Light control
  - ER 60 H, ER 100 H Humidity control
  - ER 60 G, ER 100 G Base load switching
  - ER 60 GVZ, ER 100 GVZ Base load with time delay switching
  - ER 60 I, ER 100 I Interval control

### Figure 14

- 5 ER-UPB housing unit
- 7 ER-UPD housing unit
- 8 ER-UP/G housing unit
- 10 Metal outgoing air socket with metal shutter
- 15 Plastic outgoing air socket with plastic shutter
- 12 Plaster protective cover
- 17 Fan unit
- 17.1/2 Studs with locking tabs
- 17.3 Locking lever
- 18 Circuit board: VZ 6, VZ 15, VZ 6 F, VZ I 10, VZ 24 C or H
- 18.1 Pin connector (only with H-boards)
- 19 Internal cover with:
  - 19.1 M6 x 16 mm screw
  - 19.2 Regulating plate for second room connection and WC odour extraction (included in ER-ZR, ER-UPB/R/L and/or ER-AS accessories)
- 19.3 Filter mat
- 20 Cable grommet



CAUTION


**Damage to the unit in the event of improper installation position of the housing floor seal and inner cover – protection class not guaranteed!** Fit the internal cover with the Maico name on the bottom right. Check that the housing floor seal is correctly positioned and if necessary reposition it.

### Installation instructions


- Please refer to pages 16...21 for the electrical connection; please refer to pages 24...26 for settings and functions.
- Boards [18] for VZ, VZ 15, GVZ, VZC, F, I and H fans have components at risk from ESD. Avoid direct touching of the components and contact surfaces.
- The internal cover [19] can be rotated by up to  $\pm 5^\circ$ . An adjustment is possible in the event of a housing unit that has been inserted crookedly.
- Please refer to the rating plate or a valid MAICO Catalogue for type-related data.

### Installing fan unit (Fig. 14)

- Remove the plaster protective cover [12] and clean any dirt off the housing unit.
- Check the shutter in the outgoing air socket [15] to make sure it moves freely.
- Check that the housing floor seal is correctly positioned.
- By applying equal pressure to both sides, push the fan unit onto both the studs [17.1] and [17.2] on the housing unit.

 It is important that the stud's locking tabs [17.1] and [17.2] and the locking lever [17.3] lock into position, so that the fan unit is securely seated (see circular highlight). To do this, press lightly against the spiral housing. Proper engagement must be checked carefully!

- Hinge the internal cover [19] upwards to the recessed grip.
- Fix internal cover in place with the screw [19.1]:
  - Edge of the housing = Flush with the plaster: Fix the internal cover in place with the M6 x 16 mm screw.
  - Max. plaster overshoot = 20 mm: Spacing frame. Position the DR 60/100 between the wall and the internal cover. Provide a longer screw for fixing the internal cover.
  - Housing 50...100 mm recessed, compensable with two-part ER-MR wall frame. Use the supplied longer screw for fixing the internal cover.

 When ventilating a second room, locate the plastic regulating plate [19.2] under the locking tabs to the side of the intake grille, see second room accessory ER-ZR.

## Installing the fan unit – Settings, Functions

- Insert the filter mat [19.3] and close the internal cover, with an audible click as it locks into position.
- **Carry out a function test:** Switch fan on and off.

### Removing fan unit (see Fig. 14)

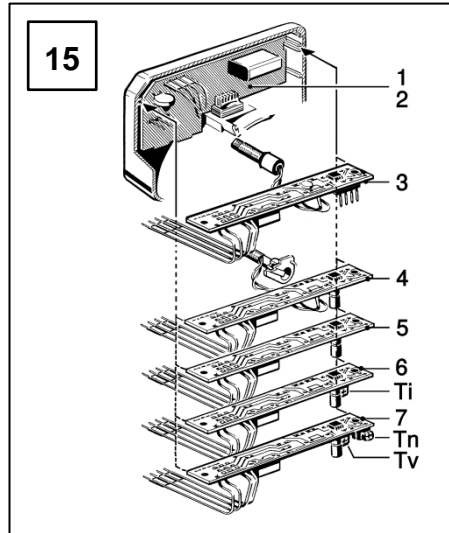


**DANGER**

**Danger to life from electric shock.** Switch off mains fuse and position a warning notice to prevent it from accidentally being switched on again.

- Remove internal cover [19] with filter mat.
- Press locking lever [17.3] slightly to the left, release and slightly lift the fan unit [17].
- Press the stud's locking tabs together [17.1] and slightly raise the fan unit [17] again.
- Press the notched studs together [17.2] and pull the fan unit [17] evenly forward and out of the housing unit.

## Settings, Functions



**i** The following listed times with a tolerance range of: Nominal value + 20%.

### ER 60, ER 100

Standard model with mother board [1].

- ER 100 fans are speed controllable
- ER 100 fans are not speed controllable

### ER 100 D

Adjustable air volumes of 100 m<sup>3</sup>/h, 60 m<sup>3</sup>/h and 40 m<sup>3</sup>/h, in combination with three-step switch. Can be used in combination with supply air elements for controlled domestic ventilation, specially in the case of renovations.

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

Model with time delay switch. With VZ 6 board [5]. Fixed 50 second start delay and 6 minute overrun time. The overrun time is approx. 15 minutes with VZ 15 units.



### ER 60 VZC, ER 100 VZC

Model with adjustable time delay switch. With VZ 24 C board [7].

- Start delay: Can be adjusted continuously from 0 to 150 seconds at the Tv setting screw.
- Overrun time: Can be adjusted continuously from 1.5 to 24 minutes at the Tn setting screw.

### ER 60 F, ER 100 F

Model with light control for windowless rooms. With VZ 6 F board [4]. The fan is switched on through the brightness of the room lighting by light control.

- Min. 30 lux switch-on intensity
- Min. 0.3 lux switch-off intensity (on unit)
- Start delay approx = approx. 50 seconds.
- Fixed overrun time = approx. 6 minutes

### ER 60 I, ER 100 I

Model with interval control for ventilating rooms that are not regularly used. With VZI 10 board [6]. The fan switches on automatically after the defined interval time, if the fan has not been switched on manually during this time.

- Time interval: Can be adjusted continuously from 0 to 15 minutes at the Ti setting screw. The factory setting is approx 8 hours (setting screw Ti at middle position).
- 10 minutes operating time per interval.
- Interval control is OFF if setting is 0 hours (setting screw turned as far to the left as it will go). Interval control is activated if the setting screw Ti is turned at least 1/4 of a turn to the right from the far left position.

When operated manually (e.g. by light switch) there is a start delay of 50 seconds and an overrun time of 10 minutes.

### ER 60 G, ER 100 G

Model with base load circuit. With G board [2]. The fan runs in continuous operation at a lower speed with 35 m<sup>3</sup>/h air volume. When the room is being used, the unit can be switched to high speed with full volumetric flow.

### ER 60 GVZ, ER 100 GVZ

Model with base load circuit and delay. With G board [2] and VZ 6 board [5]. The fan runs in continuous operation at a lower speed with 35 m<sup>3</sup>/h air volume. Start delay at the high speed is 50 seconds and overrun time at the high speed is 6 minutes.

### ER 60 H, ER 100 H

**With humidity board [3] not suitable for second room ventilation!** Please refer to pages 19 and 20 for an overview of the switching options.

**Humidity control:** Humidity control is active as soon as the fan is in operation. If the switch-on point is exceeded, the fan switches automatically over to full load mode. The fan switches automatically back to base load operation or off if the relative humidity falls below the switch-off point (approx. 10% relative humidity under the switch-on point), depending on the switching option.

**Switch-on point:** This can be set to 60%, 70%, 80% or 90% of the relative humidity with a jumper. Factory setting = 70%.

**Overrun time:** After manual switch-off, 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, or off, depending on the switching option.
- is lower than the switch-off point, the fan switches automatically back to base load operation immediately, or off, depending on the switching option.

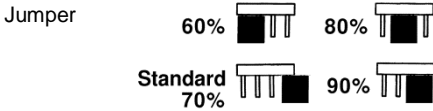
**Manual operation:** The fan can also be switched on and off with a switch or can be switched manually to full load, depending on the switching option.



**Please refer to pages 19 and 20 for information about switching options 2 and 3.** The fan can start up automatically if switch "S1" is open.

### Setting the humidity switch-on point

Position the jumper on pin connector "18.1 Fig. 14" as follows for the corresponding setting.  
Factory setting = 70%.



### Faults and their rectification

#### "Fan performance inadequate"

Cause: Dirty filter.

Remedy: Clean filter and exchange it if necessary.

Cause: Incorrect duct diameter.

Remedy: Check the diameter of the main duct, refer to diagram in the catalogue.

Cause: Supply air cross section is too small.

Remedy: Increase the supply air cross section.

#### VZ-, VZ 15-, VZC-, F-, H- and I models:

##### "No fan overrun"

Cause: The power on external conductor L connected to terminal 1 is interrupted when the fan is switched off.

Remedy: Connect the fan as per the wiring diagram.

#### VZ-, VZ 15, VZC- and I models:

##### "Fan starts up immediately and stops immediately if is switched-off"

Cause: The connections on terminal 1 and 3 are reversed.

Remedy: Connect the fan as per the wiring diagram.

##### "Fan is too loud"

Cause: Dirty filter.

Remedy: Clean filter and exchange it if necessary.

Cause: Fan unit incorrectly installed.

Remedy: Install fan unit correctly by reference to page 23.

Cause: The main duct is undersized.

Remedy: Recalculate the pressure losses.

#### H model "Doesn't switch from base load to full load even though humidity is present in the room" (refer to wiring diagram ER 60 H on Pages 19 and 20).

Cause: The switch-on point has been set to high.

Remedy: Set a lower switch-on point (see jumper setting above).

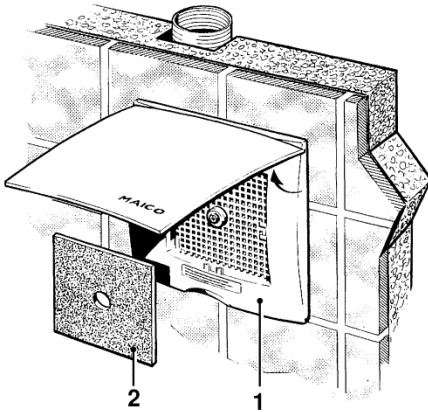
#### H model "Doesn't switch back to base load or off even after running for several hours at full load" (refer to wiring diagram ER 60 H on Pages 19 and 20).

Cause: The switch-off point has been set to low.

Remedy: Set a higher switch-on point. The switch-off point is relative to the corresponding switch-on point (see jumper graphic above).

#### If you have any questions about troubleshooting:

**Service +49 7720 694 447**



### Filter change

- Hinge the internal cover [1] upwards.
- Take out the filter mat [2] and replace it.
- Lay the filter mat on the intake grille, slide it behind the locking tabs and close the internal cover with an audible click as it locks into position.



**The filter should be changed every 3 to 6 months.**

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

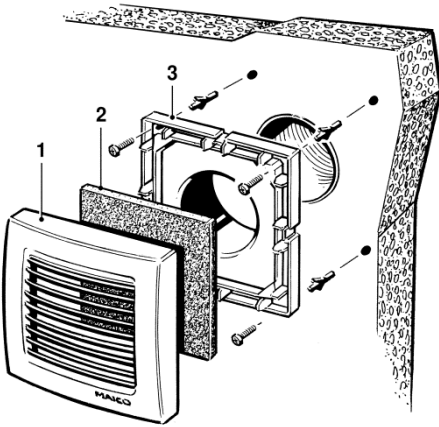
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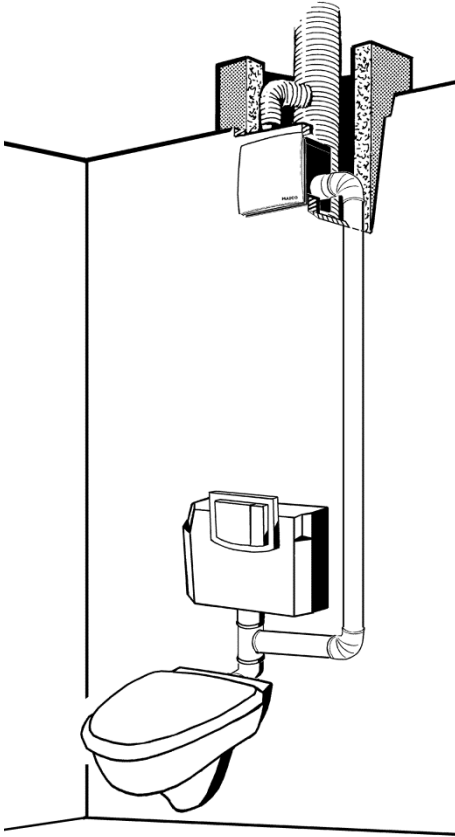
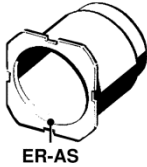
### Second room connection filter exchange

- Pull the second room internal grille [1] forwards.
- Take out the filter mat [2] and replace it.
- Reposition the filter mat in the internal grille again and locate the internal grille correctly on the frame [4].

**i** **The filter should be changed every 3 to 6 months !**  
Replacement filter mats ZRF, pack of 5, filter class G2 in accordance with EN 779: Art. no. 0093.0923

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[technik@maico.de](mailto:technik@maico.de)



### ER-AS extraction socket for WC odour extraction

ER-UP/G housing units (ER 60 or ER 100) 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.

#### Mounting

- Make a cut-out for the ER-AS extraction socket on the left, right or lower housing segment "S" at the marking on the housing unit, using a suitable knife, see Fig 8.
- Insert the ER-AS extraction socket into the housing unit. 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 seal – Protection class is not guaranteed!**

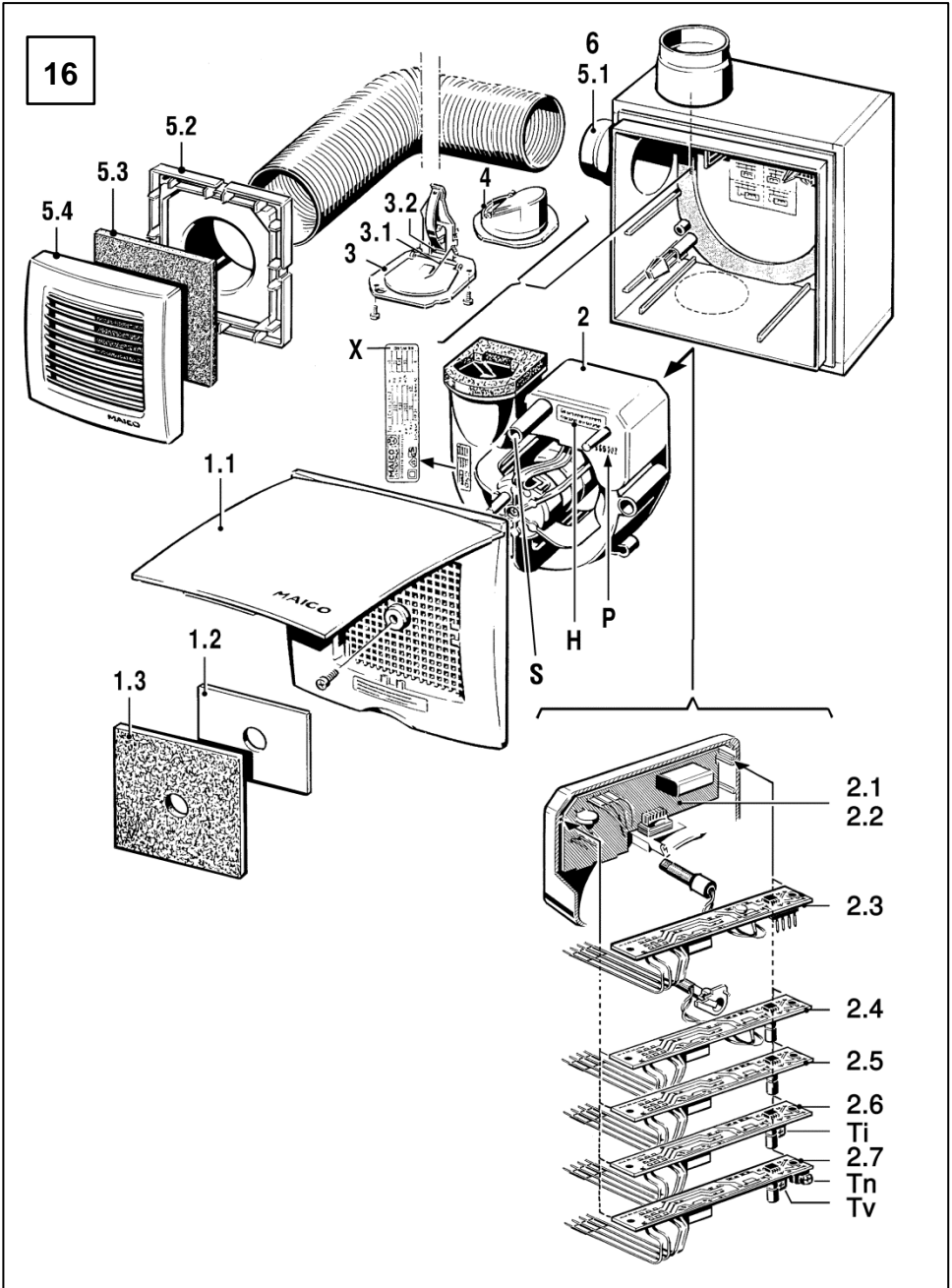
Lift up the housing seal before inserting the ER-AS extraction socket and then reposition it correctly afterwards.

- Install the ER-UPD or ER-UP/G housing units as shown on pages 11 and 15 respectively.
- Take note of the descriptions of the second room connection.
- Connect the connection duct to the ER-AS extraction socket and the 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.
- Install the fan unit and the internal cover as shown on page 23.



It is important that regulating plate [19.2] and the filter mat [19.3] supplied with the ER-AS are inserted and that there is an audible click when the internal cover locks into place.

- Carry out a function test.



**Spare parts and accessories  
ER 60 and ER 100**

**Spare parts are printed bold**

**Advice for ordering spare parts:**

When ordering spare parts, always quote the print number 0185.0947.0009 from these instructions, the unit rating plate number "X" and the corresponding item numbers listed below.

**1 Internal cover, complete, consisting of:**

- 1.1 Internal cover
- 1.2 Regulating plate (with second room connection)

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

**2 Fan unit ER 60 or ER 100**

- 2.1 Mother board
- 2.2 G board
- 2.3 H board
- 2.4 VZ 6 F board
- 2.5 VZ 6 or VZ 15 board
- 2.6 VZ1 10 board
- 2.7 VZ 24 C board

**3 Metal shutter complete for ER-UPB and ER-UPD fire protection housing with:**

- 3.1 Stop spring
- 3.2 Yoke spring
- 3.3 Solder strut (special solder)
- 4 Plastic shutter complete for ER-UP/G housing
- 5 ER-ZR Second room connection kit, consisting of:

- 5.1 Connection socket Ø 75 / Ø 80
- 5.2 Adapter
- 5.3 Filter mats ZF 60/100, Pack of 5, filter class G2 in accordance with EN 779, Art. no. 0093.0923

- 5.4 Protective grille
- 6 ER-AS extraction sockets

- H Information screen
- P Production number
- S Sensor with H and F model
- X Rating plate number

**Accessory**

**Art. no**

**DR 60/100**

**0059.0928**

Spacing frame to compensate a distance of 2 cm between the protruding recessed-mounted housing and the wall.

**ER-MO**

**0092.0361**

Sponge rubber set for the sound insulation of recessed housings, when used with highly resonant thin ceilings or walls.

**ER-MR**

**0018.0024**

Wall frame for housings that have been plastered too deeply.

**ER-ZR**

**0093.1025**

Second room connection set with connection socket for installation on the right, left or bottom of the housing.

**UPM 60/100**

**0018.0010**

Mounting support for fixing the recessed-mounted housing to shaft walls, walls or ceilings.

**ER-AS**

**0093.0928**

Ø 70 extraction socket for ER-UPD and ER-UP/G for WC odour extraction.

**ER-AR**

**0059.0899**

Masking frame for all ER-UP housing units. Prevents joints between the recessed-mounted housing and the wall.

**Address for orders**

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