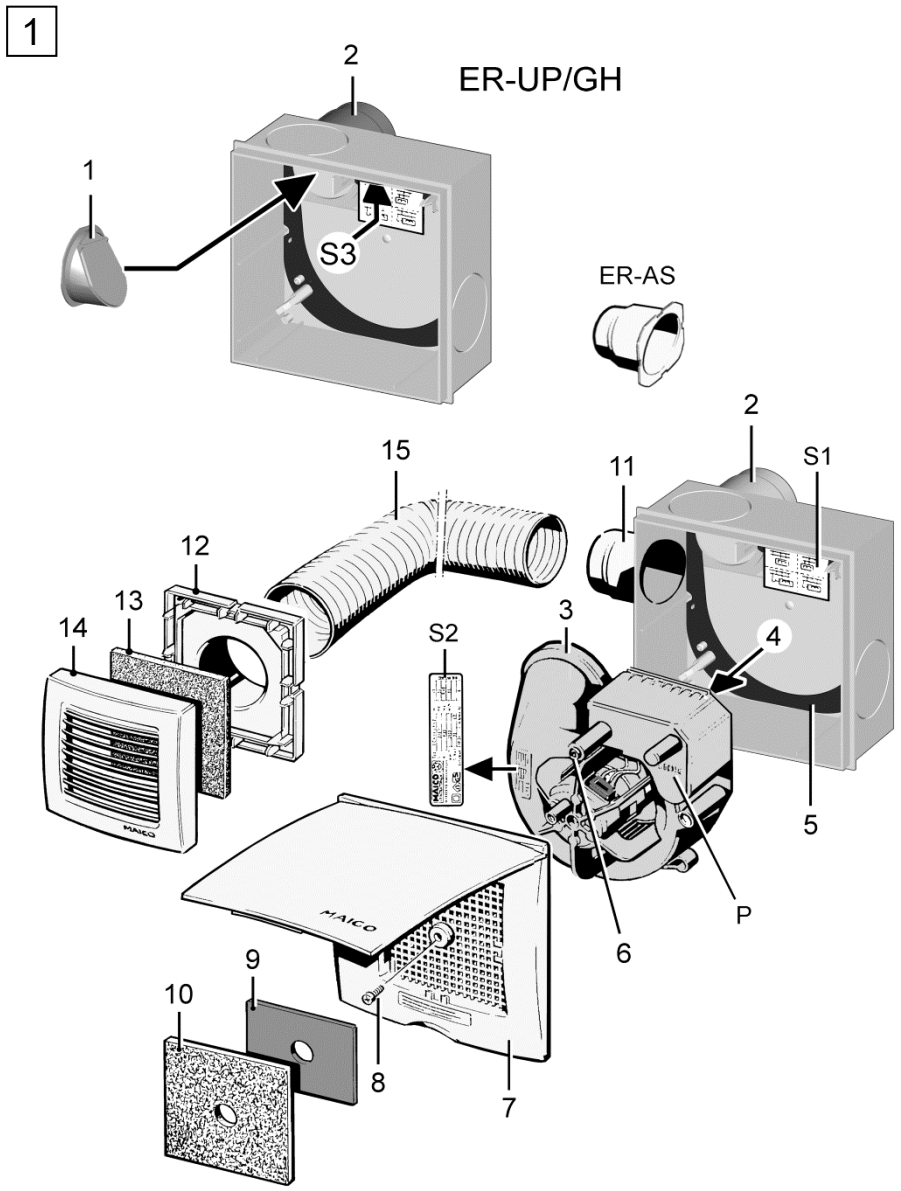
DE

Mounting and operating instructions

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

ER-UP/GH
ER 60 E
ER 100 E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ER-UP/GH
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Equipment overview (Figure 1)

ER-UP/GH recess-mounted housing with plastic shutter (without fire protection equipment)

1 Plastic backflow preventer:
Fig. 1 shows the installation position with an air outlet direction to the right

2 Plastic exhaust socket

ER 60 E/ER 100 E fan insert

3 Fan insert
4 Electronic circuit boards
5 Housing floor seal
6 Sensor (H model)
7 Cover
8 Central screw
9 Regulating plate for second room connection
10 Filter mat, filter class G2

ER-ZR second room connection set

11 Plastic installation socket for second room extraction
12 Adapter
13 Protective grille
14 Filter mat, filter class G2
15 Suction duct, ZR connection (not included in ER-ZR set)

P production date
S1 wiring diagram
S2 rating plate
S3 TÜV sticker

ER-AS (special accessories)

Extraction socket for WC seat ventilation Ø 70

Table of contents

Scope of delivery

Depending on order, comprising:

- **Shell kit** = ER-UP/GH recess-mounted housing + exhaust socket and plastic shutter, complete.
- **Final installation kit** = fan insert + cover, air filter and regulating plate for second room connection
- **Other accessories,** e.g. ER-AS for WC seat ventilation, spacer, wall or 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.

ER-UP housing (shell)

Recess-mounted housing ER-UP/GH
Article no. 0084.0370
- Recess-mounted plastic housing with exhaust socket at rear Ø 75/Ø 80 (no fire protection)
- Plastic shutter
- Plaster protective cover
- Mounting and operating instructions

Mounting support UPM 60/100 or ER-UPM
Article no. 0018.0010 or 0093.0277
- For securing the ER-UP/GH housing

Fan inserts (final assembly)

Fan insert ER 60 E / ER 100 E
Article no. → **i**nternet or catalogue.
- Fan inserts with different control circuit boards, depending on application. Can be used in all ER-UP/GH recessed-mounted housings
- Internal cover with exhaust air filter

Other accessories

Second room connection set ER-ZR
article no. 0093.1025
- Comprising protective grille, filter mat adapter, plastic exhaust socket and regulating plate

Extraction socket ER-AS (Ø 70)
article no. 0093.0928
- For connecting a WC seat ventilation duct to an ER-UP/GH housing

Spacing frame DR 60/100
article no. 0059.0928
- For compensating for projection of max. 2 cm

Wall frame ER-MR
Article no. 0018.0024
- For housings that have been plastered too deeply

Cover frame ER-AR
Article no. 0059.0899
- Prevents joints between housing/wall

Expanded rubber fitting ER-MO
article no. 0092.0361
- For acoustic insulation of recess-mounted housing

Filter mats ZF 60/100
Article no. 0093.0680
- Replacement air filter for fan insert ER 60/ER 100 and filter change indicator (time strip)

Filter mats ZRF
Article no. 0093.0923
- Replacement air filter for second room connection set ER-ZR

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**.

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 contaminate 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 children and people 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 in the event of changes or modifications or if components which are not permitted are used.
→ The unit may only be operated with original components.
→ Changes and modifications to the units are not permitted and release the manufacturer from any guarantee obligations and liability, e.g. if the housing is drilled at a point which is not permitted.

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. 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 mm² or 5x 1.5 mm².

→ 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 thermo switch 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 connecting 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 connecting cable 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 stipulated 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 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 7.3.3 (ER-UP controls) or contact your installer or planner for details of the special functions and operating characteristics.

Control model
standard, EVZ or EG
The fan is switched on and off with a switch that is to be provided by the customer.

Control model EH
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.

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 automatically. 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

The **ER-UP/GH** recess-mounted housings are specified for ER recess-mounted versions with ER 60 E or ER 100 E fan inserts.

Other ER-UP housing types are not permitted for these fan inserts.

The connection diameter for ER-UP/GH housings is Ø 75 or Ø 80.

7.1 Installation conditions

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

- in single air extraction systems with a common main duct.
- with an air supply via shaft or duct.
- with permitted connection ducts.
- with the ER-UP housing and fan insert suited to the system.
- with recess installation in the wall or ceiling.
- if installation is undertaken correctly in accordance with these instructions.
- with sufficient space from the wall or ceiling.
- if unit is completely installed.
- with the correct air filters.
- with the outside air openings stated in the planning documents.

If the installation deviates from DIN 18017-3:

- ER-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.).

7.2 Permitted exhaust air systems

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

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

* ER-UP/GH can be used inside and outside **the shaft, connection duct made from** flexible aluminium duct, second room connection made from flexible aluminium duct.

7.3 Possible combinations

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

In the **shell phase** the **ER-UP/GH housing** is installed, wired and provided with a plaster protective cover.

If the second room connection kit ER-ZR is used, the ER-UP/GH housings can also be used for second room extraction.

WC seat ventilation at the same time as room ventilation is possible using the second room connection of the ER-UP/GH 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 E or ER 100 E fan insert is placed in the UP/GH housing, the exhaust air filter and cover are fitted.

ER 100 E units are permitted for **second room air extraction**. These can be combined with the standard, EVZ or EG control models → chapter 12.1.1.

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

7.3.1 Recess-mounted housing ER-UP/GH

- 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.

7.3.2 ER 60 E or ER 100 E fan insert

- Fan insert with cover and exhaust air filter for installation in ER-UP/GH 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 change without using tools.
- It is possible to rotate the cover by ± 5° to compensate for housings which have been fitted at an angle.
- Filter change without tools.
- For single room or second room air extraction with one single fan.
  Exception: H models are only permitted for single room air extraction.
- 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).

7.3.3 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 [3].

The circuit variants and functions suited to the circuit board type are described in chapter 22.

Circuit board models

- **EVZ model**: With start delay and overrun time.
- **EG model**: With base load circuit. Continuous operation at 35 m³/h, high speed (full load) can be switched with optional switch.
- **EH model**: Barrier-free. With humidity control (fully automatic). Overrun time controlled by program (15 minutes at full load). Can also be operated manually with optional switch. Not suitable for second room ventilation.

Unit type	Circuit board type	Start delay [s]	Overrun time [min]	Can be controlled by speed	Power cable [mm²]
ER 60 E	Standard board			no	3 x 1.5
ER 100 E	Standard board			yes	3 x 1.5
ER 60 EVZ, ER 100 EVZ	VZ board	50	15	no	5 x 1.5
ER 60 EG, ER 100 EG	G board			no	5 x 1.5
ER 60 EH, ER 100 EH	H board		15	no	5 x 1.5

Tolerance of time details max. + 20 %.

8. Environmental conditions and operating limits

The permissible maximum temperature of the air 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 cm², e.g. with Maico door ventilation grille MLK.

All ER-UP 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.

Take the risk of draughts into account when planning by selecting a suitable installation location.

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.

10. Storage

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

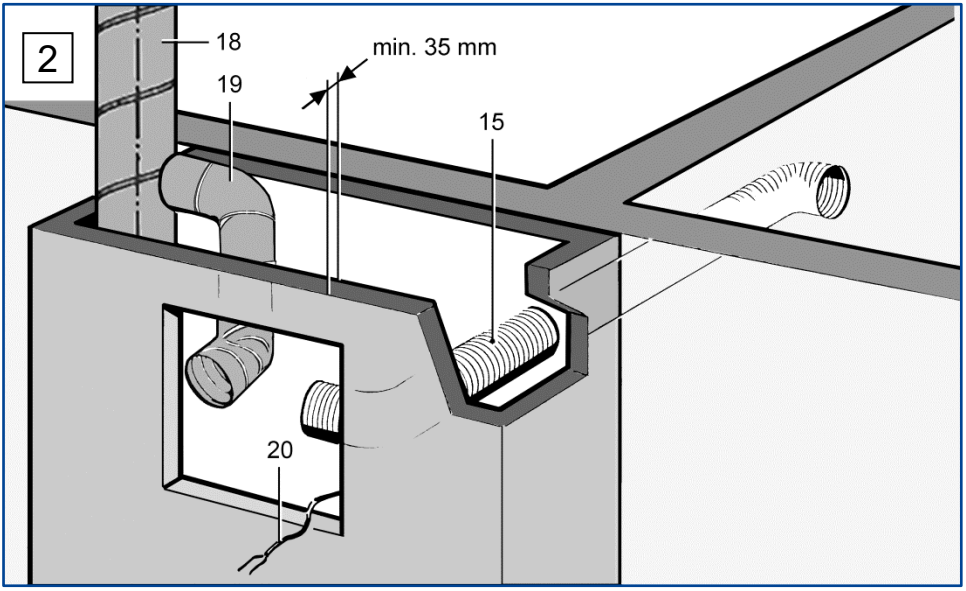
Maico accepts no liability for corrosion damage caused by improper storage, e.g. storage in damp surroundings.

11. Mounting preparations

Suitable mounting material is to be supplied by the customer.

11.1 Installation specifications for ER-UP/GH with ER 60 E or ER 100 E single room/second room

Number of units per floor, living unit or fire zone	Max. 3 fans or 3 connections
Connection diameter	Ø 75 or Ø 80 mm
Shaft wall	Any board material
Connection ducts inside the shaft	E.g. flexible aluminium duct AFR 80 between main duct in shaft and ER unit, max. 2 m long
Connection ducts outside the shaft	E.g. flexible aluminium duct AFR 80 between main duct in shaft and ER unit, max. 2 m long
Duct elbows in the unit connection duct	max. 90° bend, ascending
Number of duct elbows permitted for wall installation 	max. 2 x 90°
Number of duct elbows permitted for ceiling installation 	max. 2 x 90°
Regulating equipment in the exhaust air duct	not permitted
Wall/ceiling opening for Ø 80 unit connection duct	Brickwork or concrete: 130 mm



11.2 Preparations for wall installation

15 Suction duct for second room connection on ER-UP/GH: flexible aluminium duct AFR 75/AFR 80

18 Main duct: Steel folded spiral-seams duct

19 Connection duct on ER-UP/GH: flexible aluminium duct AFR 75/AFR 80

20 Power cable

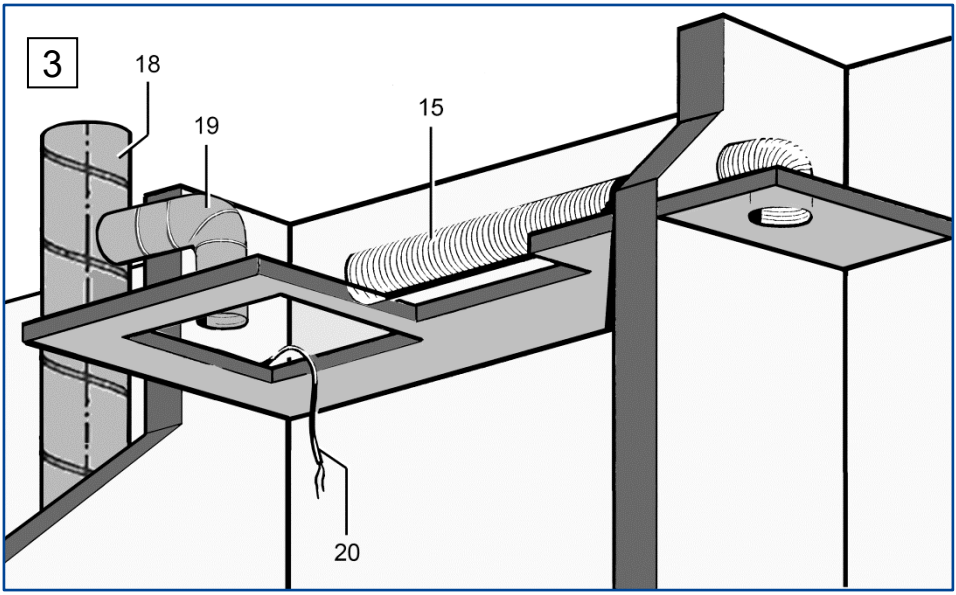
NOTICE

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 [15]. Note permissible housing installation positions.
3. Correctly attach main ventilation duct [18] inside the shaft.
4. For fire protection systems, use ceiling compound. To do this, encase the ceiling and pour in the material from above.
5. 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.



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

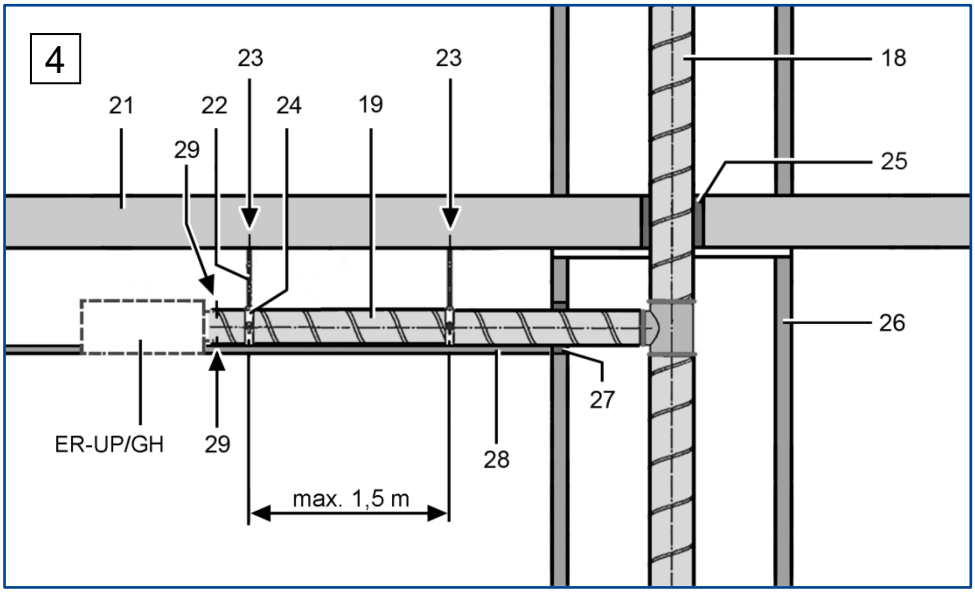
11.3 Ceiling installation preparations

15 Suction duct for second room connection on ER-UP/GH: flexible aluminium duct AFR 75/AFR 80
18 Main duct: Steel folded spiral-seams duct
19 Connection duct on ER-UP/GH: flexible aluminium duct AFR 75/AFR 80
20 Power cable

Be sure to note the mounting information in chapter 11.2.

Preparing the shaft and suspended ceiling

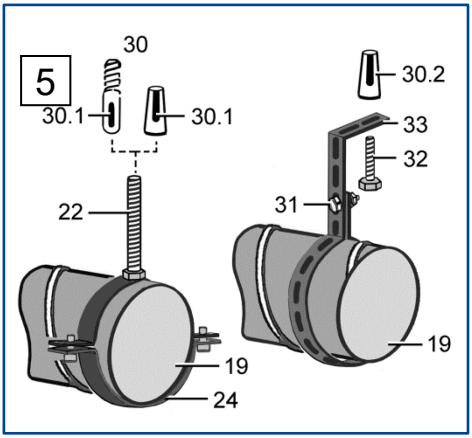
1. Produce an opening in the suspended ceiling (fire resistance not stipulated).
2. Produce opening for connection duct [19] Ø 75 or Ø 80 in shaft.
3. For a second room connection, produce the opening in the wall or shaft for the suction duct [15]. Observe installation positions for the second room connection.



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

Be sure to note the mounting information in chapter 11.2.

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



Maintain a maximum distance of 1.5 m between the duct attachments [23].

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 [27]. 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. Ensure a suitable, flat surface so that the fan insert can be safely inserted in the housing later on.
10. 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.

Notes

- 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 and technical data (→ chapters 8 and 9).
- Note permitted duct cross-section of max. 1.5 mm².

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 shutter

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

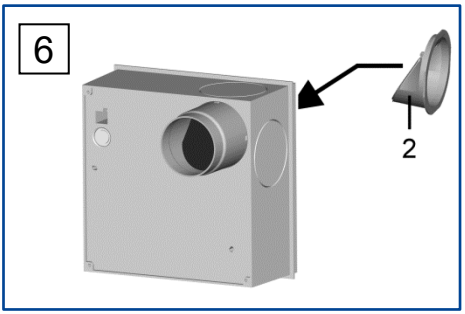
NOTICE

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

➢ Insert shutter [1] to the rear in exhaust socket [2] of ER GH housing as appropriate for installation position, Before fitting housing, it is essential that the position of the shutter is checked and its function ensured.

As a rule, use the installation position with an air outlet direction facing the rear for **ceiling installation**.

Position of plastic shutter with air outlet facing the rear



Checking the shutter

1. Pull shutter [2] out of exhaust socket and check backflow preventer for ease of movement.

2. Check shutter seal (visual check). This must fit tightly.
3. Insert shutter [2] into exhaust socket as shown in Fig. 6 until it reaches the stop. Check position and ensure function.
4. Observe correct position of housing floor seal in housing. If the installation position is incorrect, the fan insert cannot fit tightly and the unit draws in false air.

12. Housing installation

12.1 Installing ER-UP/GH housing

12.1.1 Impermissible connections on ER-UP/GH housing

- A second room connection with an ER 60 fan insert (all models) is not permitted.
- Use of an ER fan is not permitted 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 information for ER-UP/GH housing

ER-UP/GH are equipped with a plastic housing without fire protection equipment. The ER-UP/GH 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/GH housing must be inserted without any warping**.** Failure to do so will mean that the fan insert cannot engage correctly in the ER-UP/GH 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/GH housing using the Ø 70 extraction socket ER-AS.

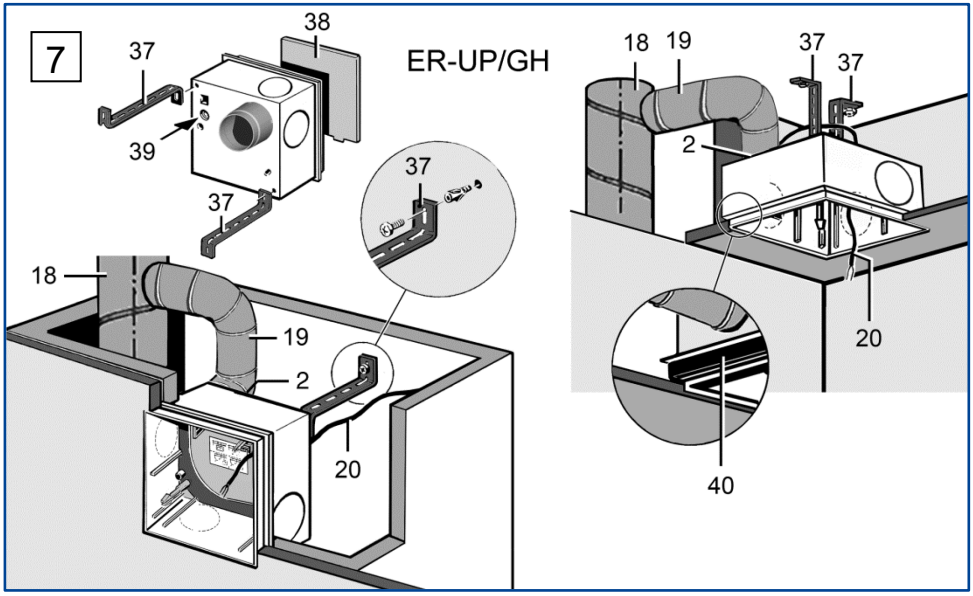
The WC seat ventilation unit must not be connected to the second room connection socket or the Centro exhaust air element.

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/GH housing and shaft must be fully sealed with non-flammable materials resistant to deformation so that incorrect air is not drawn in.

We recommend keeping these mounting and operating instructions until final installation in the ER-UP/GH 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/ Ø 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/GH wall installation, single room

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

Danger of short-circuits and damage to the unit. If the cable grommet [39] is not installed correctly, water may penetrate the ER-UP/GH 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/GH housing.
5. Insert the ER-UP/GH 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 duct 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 → chap. 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/GH ceiling installation, single room

1. Take plaster protective cover [38] out of ER-UP/GH 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/GH 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/GH housing with the supplied fixing screws (→ Fig. 7).
3. Mark fixing holes for mounting support and/or ER-UP/GH 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/GH 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).

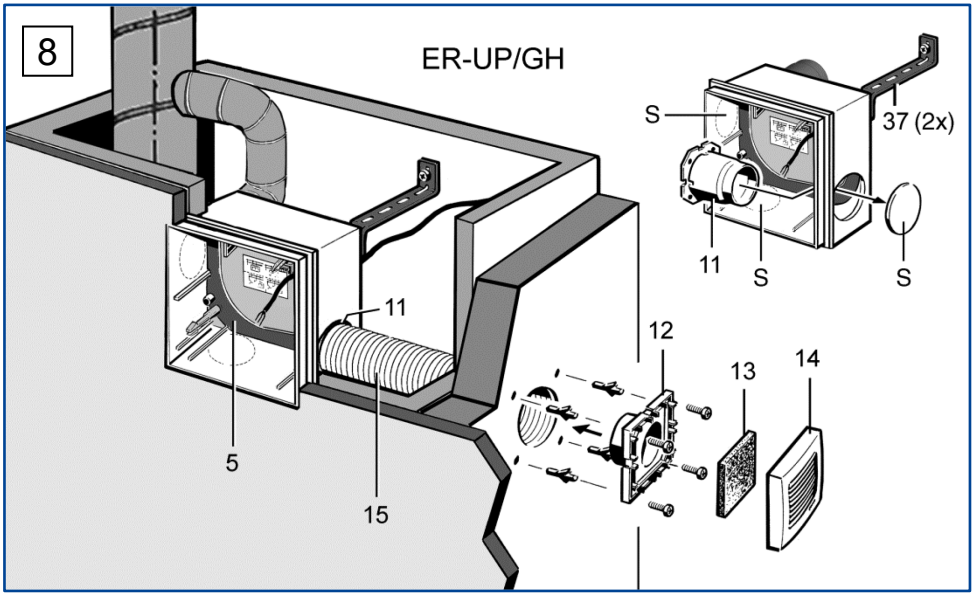
4. Insert power cable [20] from rear of housing through cable grommet [39] into ER-UP/GH housing.
5. Move ER-UP/GH housing into desired position and secure to ceiling with/without mounting support.

⚠ DANGER

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

- ➢ Only use permitted cable sheathing (→ chapter 11.1).
- ➢ Correctly attach connection duct 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.



5 Housing floor seal
11 Installation socket for second room extraction Ø 75 / Ø 80
12 Adapter
13 Filter mat, filter class G2
14 Protective grille
15 Suction duct, second room connection: flexible aluminium duct AFR 75/AFR 80
37 Mounting support UPM 60/100 (2 items)
S Housing segment

12.1.6 ER-UP/GH wall installation, second room

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

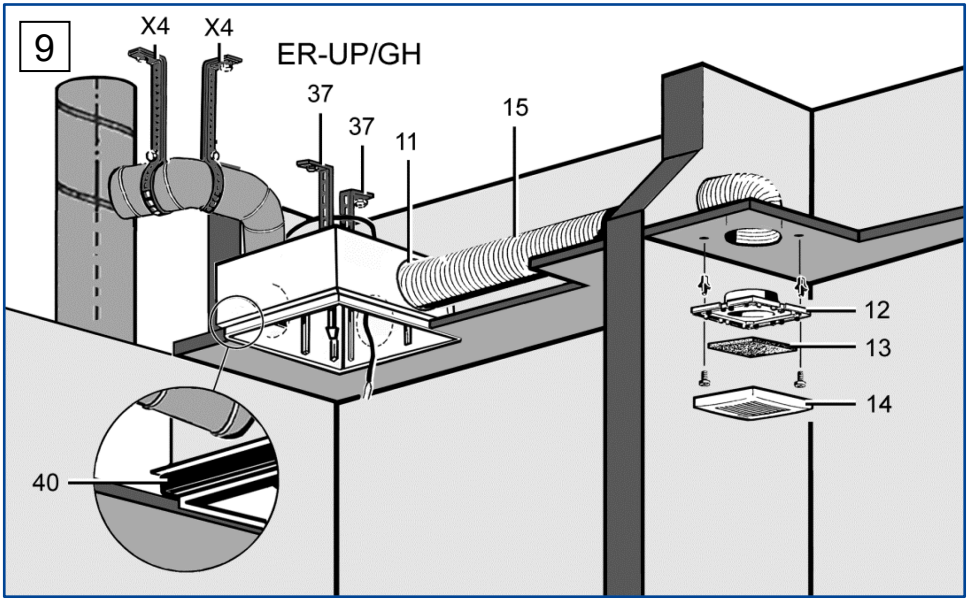
NOTICE

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 [5] near socket and insert installation socket [11]. Re-insert housing floor seal in the correct position.

2. Place installation socket [11] in ER-UP/GH 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 [15] with installation socket [11] sealed for ventilation.
5. Produce fixing holes for adapter [12] and insert dowels.
6. Connect adapter [12] to suction duct [15], e.g. with cold-shrink tape.
7. Secure adapter [12] to the wall.
8. Insert filter mat [13] and locate protective grille [14] in the correct position.

With second room extraction, keep regulating plate [9] (→ Fig. 1) for final installation. This is needed to operate the ER 100 fan insert and is inserted in the cover [7] (→ Fig. 1).



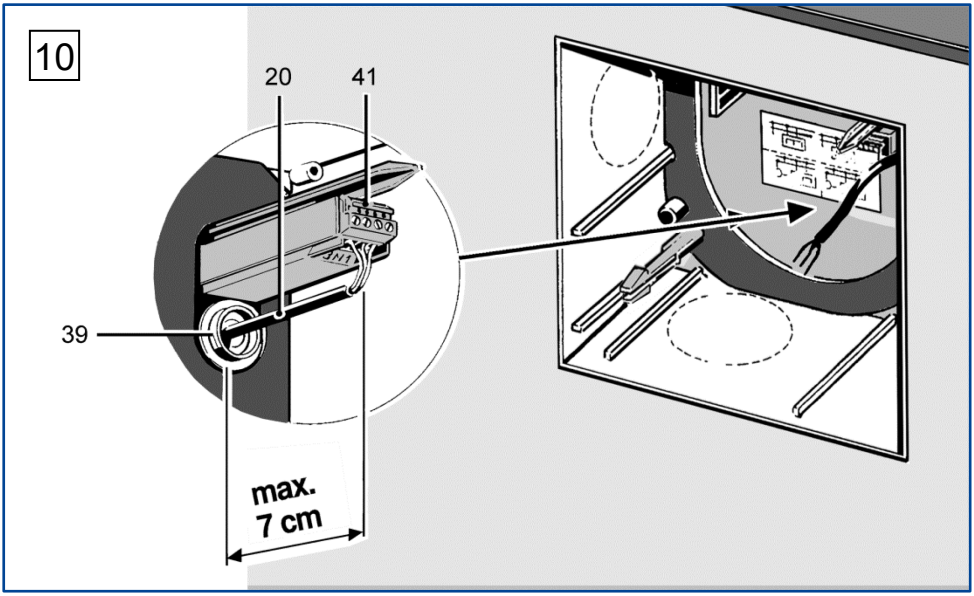
11 Installation socket for second room extraction Ø 75 / Ø 80
12 Adapter
13 Filter mat, filter class G2
14 Protective grille
15 Suction duct, second room connection: flexible aluminium duct AFR 75/AFR 80
37 UPM 60/100 mounting support
40 Expanded rubber ER-MO
X4 Clamping band or steel threaded rod with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

12.1.7 Ceiling installation ER-UP/GH – second room

Observe mounting information in chapter 12.1.2.

1. Mount ER-UP/GH 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.

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



13. Electrical connection

20 Power cable
39 Cable grommet
41 Terminal box

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

Unit damage caused by EVZ and EH units touching ESD sensitive components on the electronic circuit board.

➢ 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.

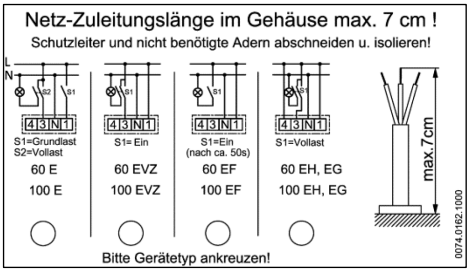
➢ Do not connect additional consumers to terminal 4.

Notes

- Always note the relevant specifications for electrical installations and when fitting equipment. In Germany, observe DIN VDE 0100 and the corresponding parts in particular. 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 mm².
- 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 through the intended cable grommet,
  - if fan unit is correctly engaged in ER-UP housing and
  - if cover [7] 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 10.
5. Wire power cable to the terminal box according to the wiring diagram in chapter 22.



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.

6. Insert plaster protective cover.

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

14. Installation of fan insert and cover

14.1 Settings on electronic circuit boards

Notes

- Electronic circuit boards [12] of the ER variants standard EVZ, EG and EH have no setting options.
- Electronic circuit boards [4] of the ER variant H are equipped with an automatic humidity function. For unit functions → chap. 7.3.3.
- Tolerance for time details max. + 20 %.
- Units with a time delay switch (EVZ and EH 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

1. Place fan insert on front so that electronic circuit board [4] (control) is freely accessible.
2. Set the desired values as follows with the potentiometers or jumpers.

Electronic circuit boards ER 60 EH and ER 100 EH

Humidity control function on EH units

Once the fan insert has been installed, the unit regulates to the current room humidity (relative humidity). This humidity value is saved as the first reference value. The reference value does not have to be specified manually.

If the relative humidity **falls** below the reference value during operation, the newly established reference value is saved.
If the room humidity **increases** by 10 % within 2 minutes, the fan automatically switches to the nominal load level (60 or 100 m³/h).

If there are no further increases, the unit continues to run at nominal load level 1 until the humidity again falls below the saved reference value.

If the humidity falls below the saved reference value, the overrun operation starts with an overrun time of 15 minutes.

If the humidity does not fall below the reference value within 60 minutes, the unit switches back into the operating status before the humidity control was activated. The current humidity value is saved as the new reference value.

ER EH units can also be operated using the light switch. With “Light on”, the fan starts in nominal load. Actuation via the light switch takes priority over the automatic humidity function. With “Light off”, the unit continues to run until the remaining overrun time has passed. The automatic humidity process is then assigned maximum priority again and controls the unit.

14.2 Installing fan insert → Fig. 11

The ER fan insert is inserted into the ER-UP/GH recess-mounted housing as follows.

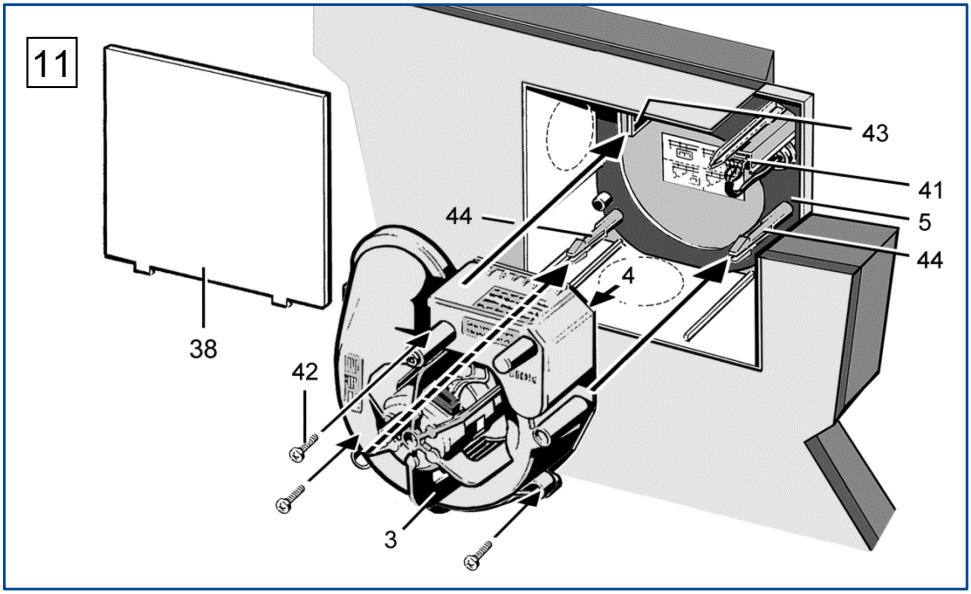
1. Switch off mains fuse, secure and fit warning sign.
2. Remove plaster protective cover [38] and clean any dirt off the recess-mounted housing.
3. Ensure that the fan type ticked in the housing box matches the type to be fitted.
   Check ease of movement of backflow preventer. When installed, the backflow preventer must close automatically.
4. Check that the housing floor seal is correctly positioned and insert properly.

NOTICE

The noise level will increase if the housing floor seal [5] is fitted incorrectly.
Degree of protection not guaranteed if housing floor seal is positioned incorrectly.

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

14. Installation of fan insert and cover



3 Fan insert
4 Electronic circuit board (control)
5 Housing floor seal
38 Plaster protective cover
41 Terminal box
42 Optional fixing with screws (to be supplied by the customer)
43 Locking lever
44 Stud

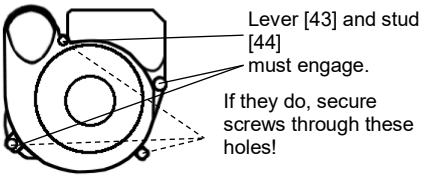
5. Check that all screw connections are tight.
6. Check that connection data matches technical data on the unit (rating plate S2 → Fig.1).

NOTICE

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

- ➢ Ensure correct engagement in the 3 fixing points [43] and [44].
- ➢ As an option, fix the fan insert 3 suitable fixing screws [42].

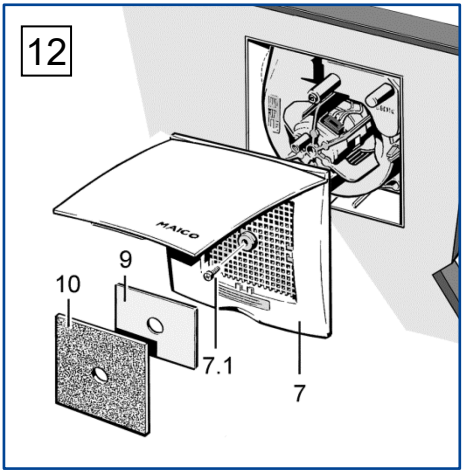
Note wiring diagrams in box base.
Cables must not prevent the fan from being slid in.



→ Mounting information in unit

7. Slide fan insert/exhaust air element evenly and in parallel onto both studs [44]. Ensure that both locking tabs of the studs and the locking lever [43] engage audibly.
8. Ensure that the fan insert is correctly engaged. To do this, gently pull and press against the fan insert [7]. The fan must not move. Alternatively, firmly screw down fan insert in housing.

14.3 Installing the cover



7 Cover with central screw [7.1]
9 Regulating plate for second room connection
10 Filter mat, filter class G2

Mounting information

- Cover [7] can be turned up to ± 5° (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 [7.1], 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 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 [7] at the recessed grip, place on the ER-UP housing and secure with the central screw [7.1].
2. If necessary, first fit a spacing or wall frame.
3. With second room extraction, insert regulating plate [9] below locking tabs at the side on the intake grille of the cover, insert filter mat [10].
4. Lock cover [7]. 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 7.3.3, ER-UP controls). Take additional instructions provided 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 degree of soiling.

⚠ 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.

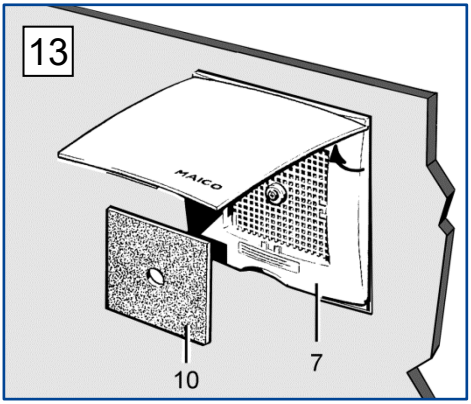
1. Only use a dry cloth to clean the cover [7] of the fan.
2. If the cover is very dirty, remove it and clean with water.
3. Fold up cover [7].
4. Take out filter mat [10] and replace it.
5. Place filter mat on intake grille cover [7] and lock cover. The lock must engage audibly.

Filter change interval every 3 to 6 months, depending on the degree of soiling.

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

Filter-Shop:
www.ventilatorshop24.com

16.1 Filter change

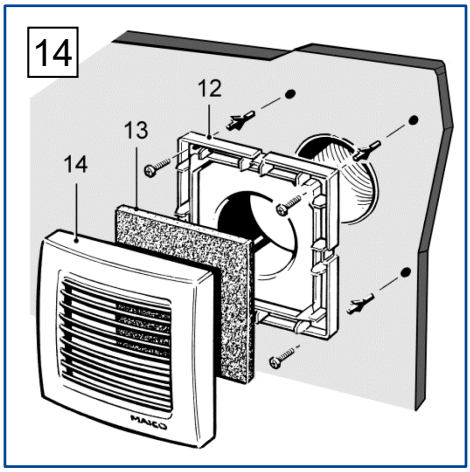


7 Cover
10 Filter mat, filter class G2

In case of questions, please contact:

Maico Elektroapparate-Fabrik GmbH
Steinbeisstraße 20
78056 Villingen-Schwenningen
Germany
Tel. +49 7720 694 445
Fax +49 7720 694 175
Internet: www.ventilatorshop24.com
E-mail: ersatzteilservice@maico.de

16.2 Filter change, second room



12 Adapter
13 Filter mat
14 Protective grille

Filter change interval every 3 to 6 months, depending on the degree of soiling.

1. Pull the protective grille [14] forwards.
2. Take out filter mat [13] and replace it.
3. Insert new filter mat into protective grille, then press protective grille into correct position on adapter [12] until it audibly engages.

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

Filter-Shop:
www.ventilatorshop24.com

In case of questions, please contact:

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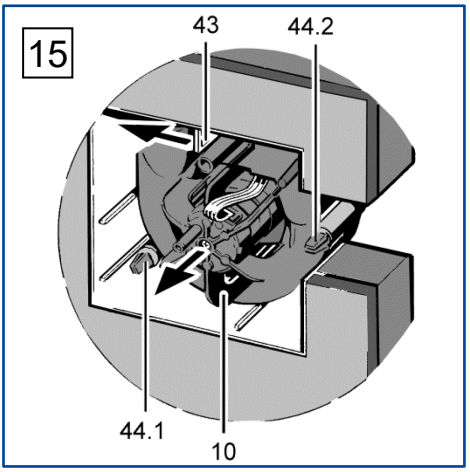
16.3 Removing fan insert

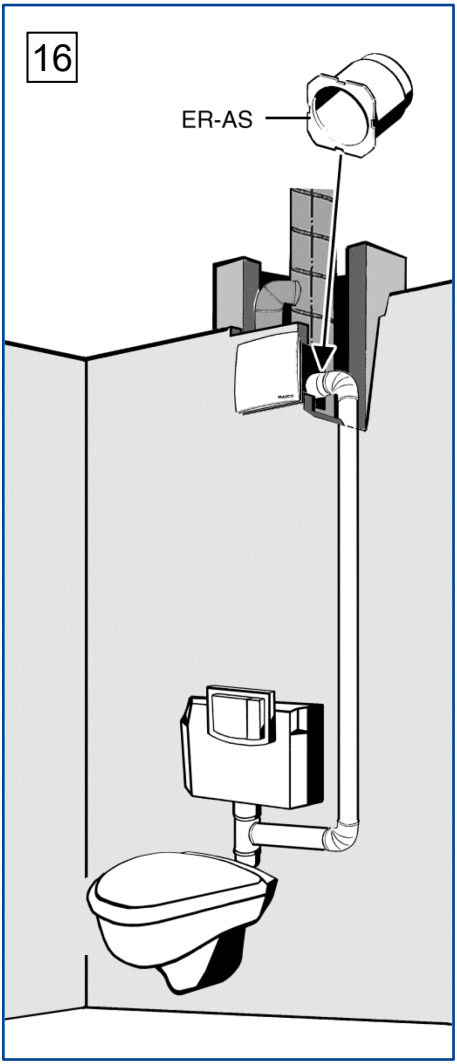


10 Fan insert
43 Locking lever
44 Studs [44.1] and [44.2]

1. Switch off mains fuse, secure and fit warning sign.
2. Open cover [7] and remove.
3. Press locking lever [43] slightly outwards, (→ arrow), release and slightly lift the fan unit [3].
4. Press together locking tabs of stud [44.1] and raise fan insert slightly.
5. Press together locking tabs of stud [44.2] and evenly pull entire fan insert out of bottom part of housing in parallel.
6. Installation is carried out in reverse order.

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



ER-UP/GH housing units can be connected to the WC flushing pipe using the ER-AS extraction socket. A Ø 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 Ø 70 branch must be installed in the flushing pipe of the flush-mounted cistern.

Mounting

1. Cut the left, right or bottom housing segment "S" out of ER-UP housing at the marking using a knife → Fig. 8.
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/GH housing unit in accordance with chapter 12.1. 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 [7] → chapter 14.

It is important that regulating plate [9] and filter mat [10] 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.	● Dirty filter. Replace filter. ● Locking hook not engaged. Engage fan insert correctly. ● Incorrect duct diameter. Check diameter of the main duct, refer to diagram in the catalogue. ● Supply air cross section is too small. Increase the supply air cross section.
EVZ and EH 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.
EVZ and EH 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.
Fan is too loud.	● Dirty filter. Replace filter. ● Fan insert incorrectly installed. Insert fan insert correctly in accordance with chapter 14.2.
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.	A rapid increase in humidity was not reached within the specified 2 minutes. The reference value is reset.
H mode no longer switches back to base load operation or off even after a long period in full load operation.	If the humidity control is active for 1 hour, the fan switches off. The reference value is reset.
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.

If the fault persists or reoccurs: Disconnect the fan completely from the mains power supply. Let a trained electrician determine the cause of the fault and eliminate it.

If you have any question relating to 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
3.1	Connection terminal for fan insert, 4 pins	0157.0326.0000
4	Circuit boards	
	ER-60	F101.1012.9002
	ER-60 VZ	F101.1014.9004
	ER-60 G	F101.1012.9102
	ER-60 H	F101.1014.9207
	ER-100	F101.1013.9002
	ER-100 VZ	F101.1015.9004
	ER-100 G	F101.1013.9102
	ER-100 H	F101.1015.9207
7	Cover, complete ER 60 / ER 100 ER	0059.1017.9000
10	Filter mat ZF 60/100: 5 items, filter class G2 according to EN 779	0093.0680
13	Filter mat ZRF: 5 items, filter class G2 according to EN 779	0093.0923

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E-mail: ersatzteilservice@maico.de

20. Dismantling

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

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 ventilation unit 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.

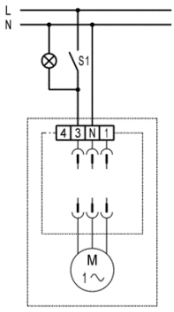
Dispose of the **air filter** in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.

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.

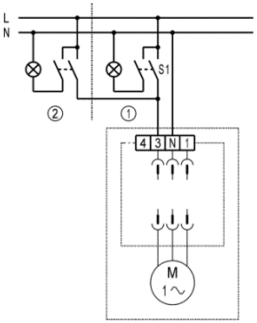
22. Wiring diagrams

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

ER 60 E, ER 100 E

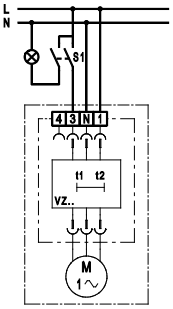


S1 On/Off switch
① = Main room
② = Second room

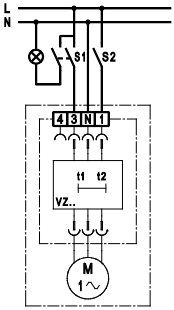


S1= On/Off switch

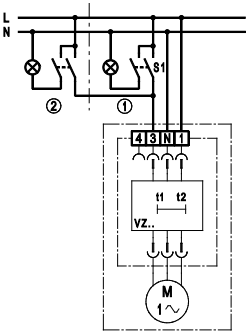
ER 60 EVZ
ER 100 EVZ



Standard switching



Switching options



S1 = On/Off switch
(ON after approx. 50 seconds)
① = Main room
② = Second room

ER 60 E and ER 100 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 E 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 EVZ, ER 100 EVZ

Standard switching:
The fan starts up approximately 50 seconds after the room lighting is switched on. The fan has an overrun time of 15 minutes after switching off.

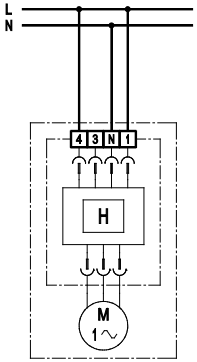
Switching option
The fan starts up approx. 50 seconds after switching on the room lighting (with switch S1 and S2).
The fan has an overrun time of 15 minutes after switching off with switch S1. In addition, the fan can be switched off with switch S2 independent of the room lighting.

ER 100 EVZ 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 15 minutes after switching off with the last switch to have been used.

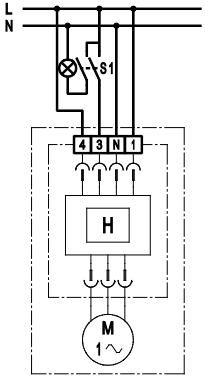
ER 60 EH, ER 100 EH

Standard switching:



ER 60 EH, ER 100 EH

Switching option 1



ER 60 EH, ER 100 EH

For function of the humidity control → chapter 14.1.

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 there is a rapid increase in humidity and the reference value is exceeded, the fan automatically switches into full load operation.

The fan switches automatically back to base load operation if the relative humidity falls below the reference value.

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.

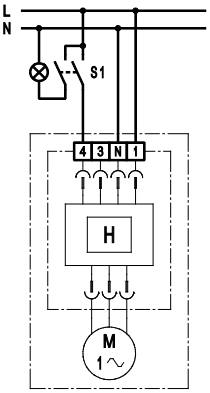
Switch "S1" is used to switch manually to full load operation. After switching full load operation off with "S1", the fan continues in full load operation for an overrun time of 15 minutes.

If after this time, the humidity as measured at the fan

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

ER 60 EH,
ER 100 EH

Switching option 2



Switching option 2:
Manual base load operation

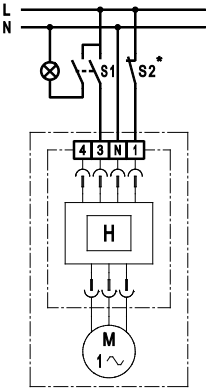
The fan is switched manually to base load operation with switch "S1". Humidity control is active, see Standard Switching. If, after being manually switched with switch "S1", the fan is in:

- 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 EH,
ER 100 EH

Switching option 3



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

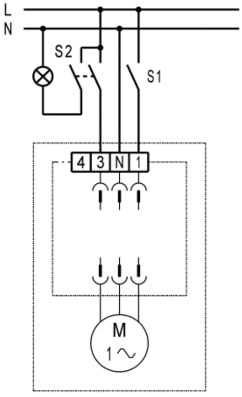
The fan is switched manually to full load operation with switch "S1". Humidity control is active. After switching off with "S1", the fan continues in full load operation for an overrun time of 6 minutes. If after this time, the humidity as measured at the fan

- 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 EG,
ER 100 EG



ER 60 EG, ER 100 EG

The ER 60 EG and/or the ER 100 EG 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.

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