

HOME VENTILATION WITH HEAT RECOVERY

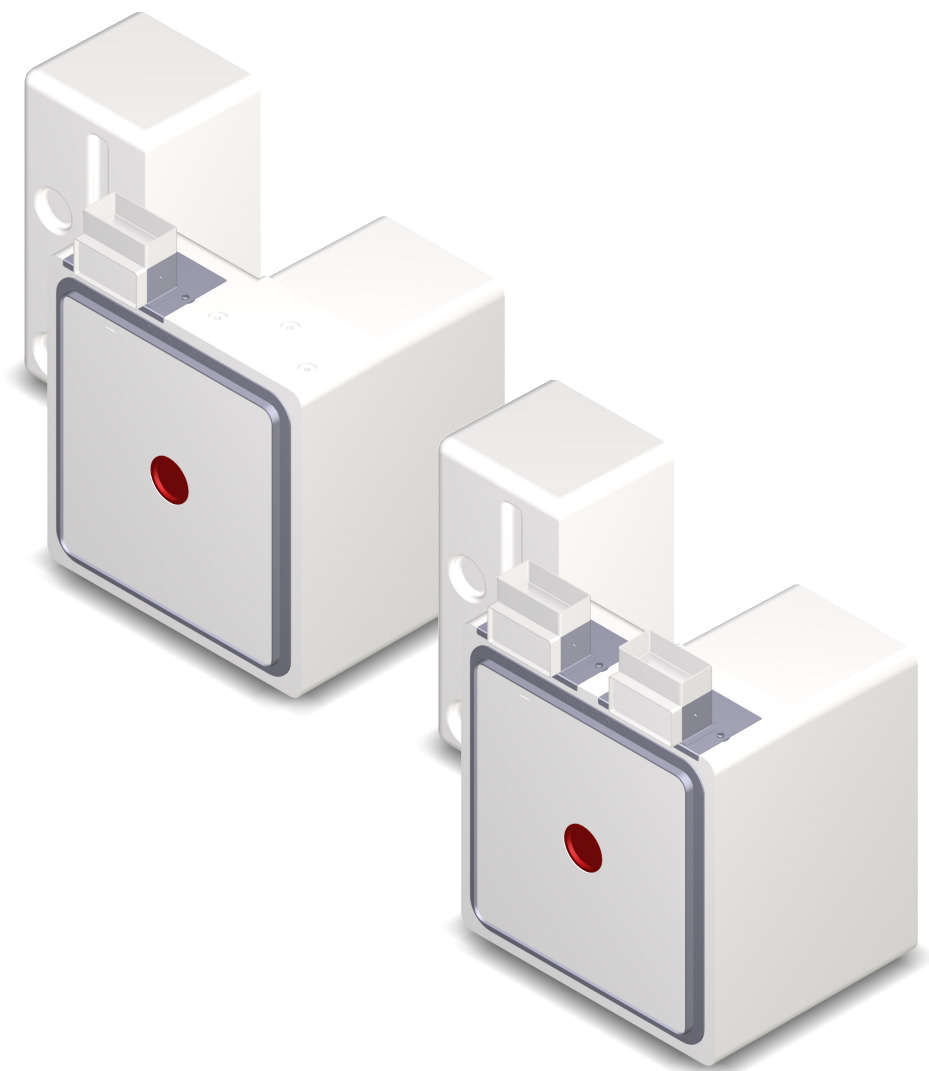
Flush-mount installation kit

M-WRG-M/MB-FK1

M-WRG-M/MB-FK2

Solid construction with one connection for flat ductwork
Solid construction with two connections for flat ductwork

for flush-mounting ventilation units from the M-WRG-S and
M-WRG-K series



INSTALLATION MANUAL

Part no. 5300-03 07/2013 EN



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1 Introduction

1.1 Notes on this installation manual



This installation manual contains important information that should be followed when installing the installation kit for the M-WRG-S and M-WRG-K ventilation units.

- ▶ To avoid possible risks and mistakes, read all the instructions carefully before installing the kit.

WARNING

- ▶ Follow ALL danger and warning instructions and notes on precautionary measures.
- ▶ Read sections „2 Safety instructions“ on page 4 and „3 Planning notes“ on page 5 carefully.

1.2 Description

This manual describes how to flush-mount the following installation kits in solid walls:

- Type M-WRG-M/MB-FK1 with one connection for flat ductwork for exhaust air **or** supply air (see Fig. 1)
- Type M-WRG-M/MB-FK2 with two connections for flat ductwork for exhaust air **and** supply air (see Fig. 2)



Fig. 1: M-WRG-M/MB-FK1

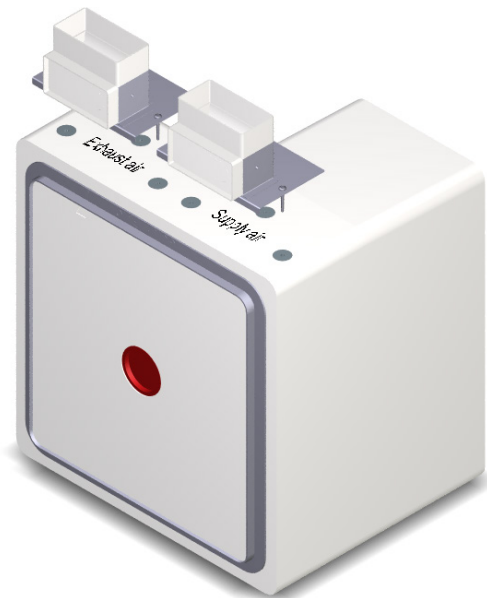


Fig. 2: M-WRG-M/MB-FK2

1.3 Explanation of the symbols used

- ▶ This symbol indicates an action to be taken.
- This symbol indicates a list.

2 Safety instructions

This manual contains notes that you must follow for your own personal safety and to avoid injury and damage to property. They are highlighted by warning triangles and are shown as follows according to the level of danger.

2.1 Hazard classification



as used in this manual means that death, severe injury or considerable damage to property **will** occur if the hazard warnings are ignored.



as used in this manual means that death, severe injury or considerable damage to property **may** occur if the hazard warnings are ignored.



as used in this manual means that minor injury or damage to property may occur if the notes on precautionary measures are ignored.

NOTE

A note as used in this manual contains important information about the product or about a part of the manual to which particular attention should be paid.

2.2 Notes on using the ventilation units safely



— Operation with heating appliances that draw air from the room

- ▶ Follow the requirements of the German Fire Code (FeuVo) when planning and installing the unit.
- ▶ Contact the local chimney sweep before the end of the planning phase.
- ▶ Have the chimney sweep approve the operation of the ventilation unit.

— Installation in wet areas

The following rules from DIN VDE 0100-701/702 apply to installation in wet areas:

- Protection zone 0 and 1: The unit must NOT be installed in these areas.
- Protection zone 2: The unit may be installed in this area if the mains switch is covered with a protective cap. The protective cap must be installed at the factory.
 - ▶ You will need to include the protective cap (M-WRG-SN, part no. 5430) when you order the ventilation unit.
- Other zone: The unit may be installed in this area.

— Build-up of icicles and ice patches at low temperatures

The heat recovery process in our ventilation units causes condensation. This condensation is dissipated to the outside via the outgoing air line. When external temperatures drop below 0° C this can cause a build-up of icicles at the outer wall terminals and ice patches on the ground.

- ▶ You should therefore position the outer wall terminals so as to exclude any possibility of accidents.

3 Planning notes

When planning, please read the following notes on selecting the location of the ventilation unit:

- The installation kits can be installed in solid walls that are at least 17.5 cm thick.
 - ▶ For walls that are 60 cm thick or more, you will need 100 cm long supply and exhaust air pipes (M-WRG-LR 100, part no. 5580).
- The ventilation unit must be installed indoors on an external wall.
- For a standard room height of 2.50 m, the best effect for air exchange is achieved if the supply and exhaust air openings are roughly 30 cm (top edge of the unit) below the ceiling (exception: exhaust air opening in the ceiling if the 2-room solution is used).
 - ▶ Maintain the following minimum distances:
 - For this installation kit, the distance between the top edge of the wall box and the ceiling must be at least 30 cm, otherwise there will not be enough space for the flat ductwork.
 - The distance between the side edge of the unit and adjacent surfaces should be at least 5 cm. The ventilation unit will be easier to operate if this minimum distance is maintained. It also allows the filter to be replaced without obstruction.
 - ▶ In taller rooms, position the ventilation unit so that an operator can still reach the control panel unaided (without steps, ladders, etc.). Alternatively order a type of ventilation unit that is not controlled from the unit itself.
- The ventilation unit must always be freely accessible for operation and maintenance.
 - ▶ Make sure that the ventilation unit is not blocked, obstructed or covered when the room is subsequently decorated and furnished, otherwise it cannot be operated and it will not be possible to replace the filter.
 - ▶ Make sure that the supply and exhaust air openings are not blocked, obstructed or covered when the room is subsequently decorated and furnished.



Retrospectively flush-mounting the installation kit

- ▶ Make sure that there are no supply lines in the vicinity of the wall breakthrough (e.g. gas, water or power).
- ▶ Make sure that the wall breakthrough does not affect the local static loading requirements.
 - ▶ Fit a lintel if necessary.

4.3 Options

Item	Description	Part no.
11	Installation kit filler piece M-WRG-M/Fü	5575-5
-	Plaster scrim M-WRG-PG	5060

5 Dimensions of the installation kits

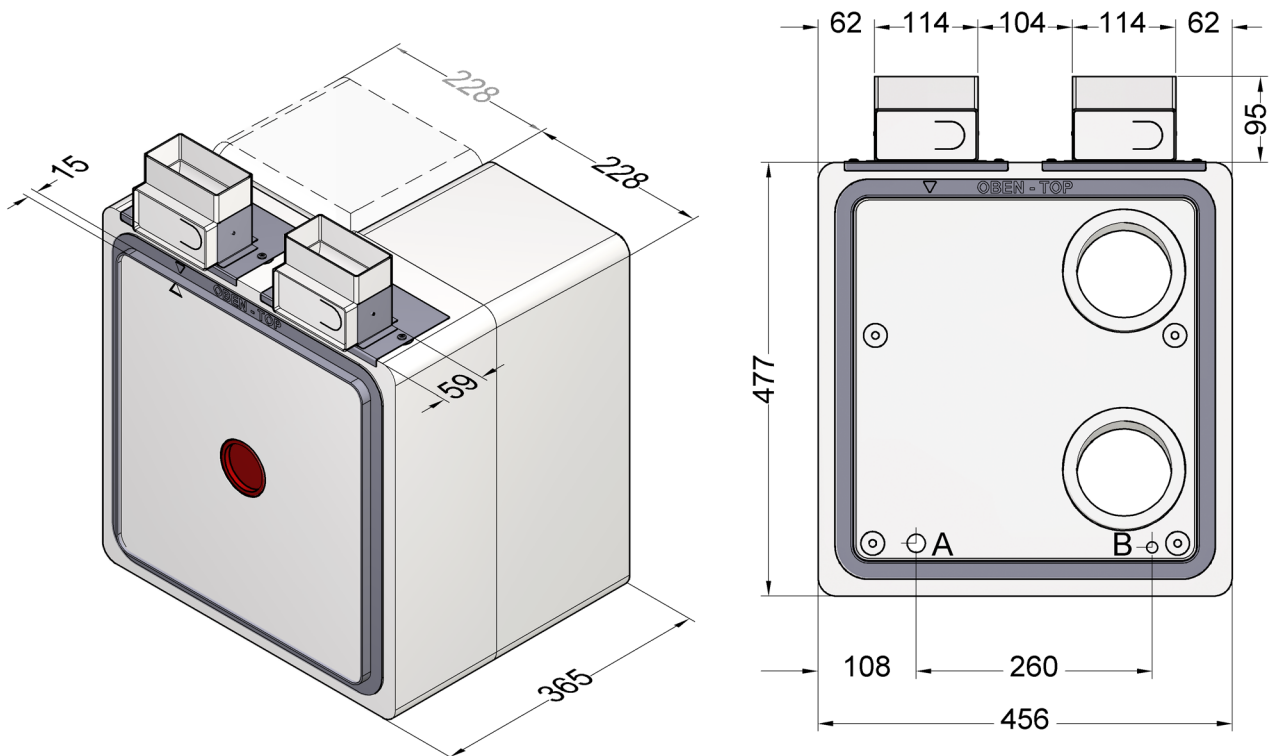


Fig. 3: Dimensions of the installation kit with filler piece in millimetres

- A Hole for mains cable
- B Hole for control cable (only needed for certain ventilation units, see Tab. 1 on page 12)

6 Tools and equipment required

- Riveter
- Sealing tape, 30 mm wide for installing the flat ductwork, e.g. Coroplast
- Wedges for fixing the wall box, 8x
- Wedges for fixing the filler piece, if necessary, 4x
- Set of cross-head screwdrivers
- Wall chaser
- Expanding foam (“exact gap” foam to EnEV standards is recommended)

- Styrofoam saw
- Spirit level

NOTE

If the installation kit is to be retrospectively installed in a solid wall, you will need additional tools to break through the wall.

7 Installing the installation kit

WARNING

Follow the relevant accident prevention regulations

- ▶ Follow the accident prevention regulations when setting up the installation location.
- ▶ Protect the outside area against falling parts.

7.1 Fixing the fixing plate to the wall box

- ▶ Use the Spax screws to fix the fixing plate (see Fig. 4 and Fig. 5).

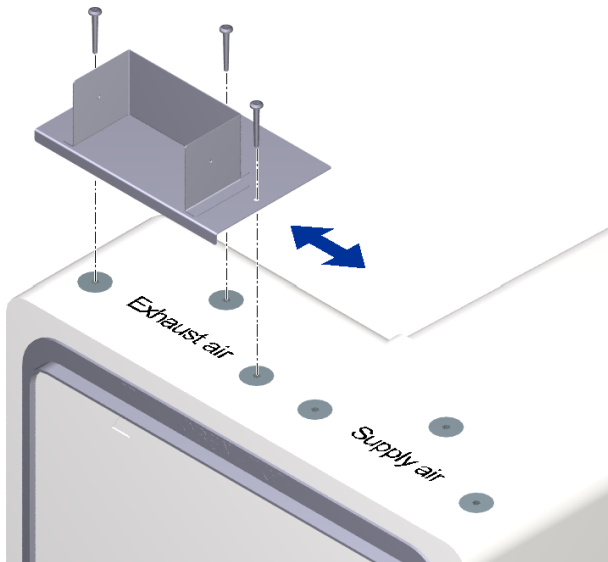


Fig. 4: M-WRG-M/MB-FK1, Fixing the fixing plate for exhaust air **or** supply air

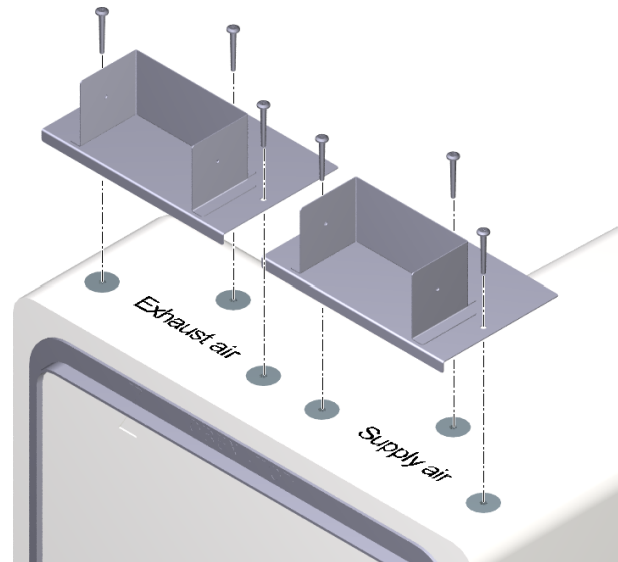


Fig. 5: M-WRG-M/MB-FK2, Fixing the fixing plates for exhaust air **and** supply air

7.2 Breaking through the wall

The wall breakthrough can either be included when planning a new build or subsequently made in the solid wall.

7.2.1 Planning the wall breakthrough for new builds

- ▶ Commission an architect or design professional to include the wall breakthrough at a suitable point in the construction drawing and execute it when constructing the building shell.

- ▶ There are two possible versions of the wall breakthrough:
 - Wall breakthrough with recess (see Fig. 6) for installation kit **without** filler piece M-WRG-M/Fü
 - Full-width wall breakthrough (see Fig. 7) for installation kit **with** filler piece M-WRG-M/Fü

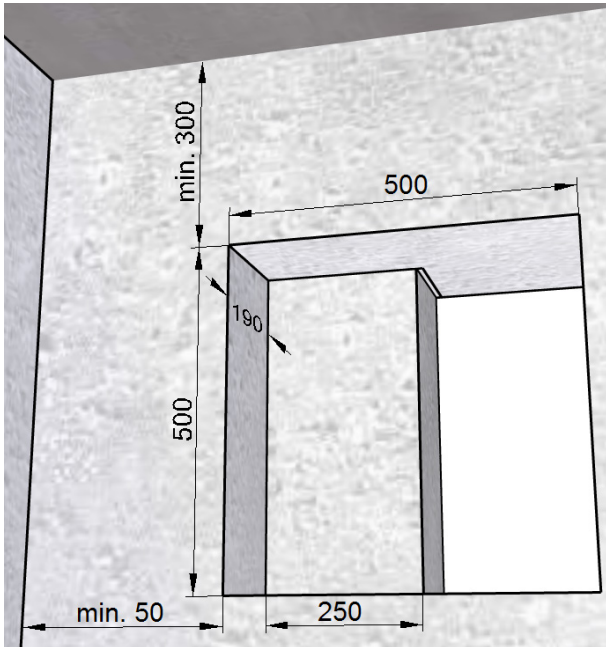


Fig. 6: Wall breakthrough for installation kit **without** filler piece, dimensions in millimetres

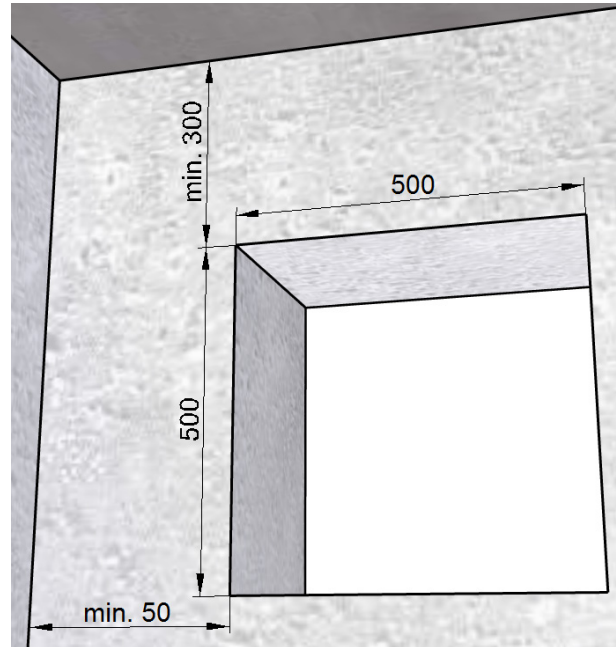


Fig. 7: Wall breakthrough for installation kit **with** filler piece, dimensions in millimetres

7.2.2 Breaking through an existing wall



WARNING

Danger due to damaging supply lines and changing the stress loadings

- ▶ Make sure that there are no supply lines in the vicinity of the wall breakthrough (e.g. gas, water or power).
- ▶ Make sure that the wall breakthrough does not affect the local static loading requirements.
 - ▶ Fit a lintel if necessary.
- ▶ Break through the wall. There are two possible versions of the wall breakthrough:
 - Wall breakthrough with recess (see Fig. 6) for installation kit **without** filler piece M-WRG-M/Fü
 - Full-width wall breakthrough (see Fig. 7) for installation kit **with** filler piece M-WRG-M/Fü

7.3 Chasing out channels for flat ductwork connections

- Installation kit M-WRG-M/MB-FK1 with exhaust air **or** supply air duct
 - ▶ Use the wall chaser to chase out **one** channel 120 mm wide, 60 mm deep and at least 100 mm high (see Fig. 8) for either the exhaust air duct (item 1 in Fig. 8) **or** the supply air duct (item 2 in Fig. 8).
- Installation kit M-WRG-M/MB-FK2 with exhaust air **and** supply air duct
 - ▶ Use the wall chaser to chase out **two** channels 120 mm wide, 60 mm deep and at least 100 mm high (see Fig. 8) for both the exhaust air duct (item 1 in Fig. 8) **and** the supply air duct (item 2 in Fig. 8).
 - ▶ Check that the installation kit fits easily into the wall breakthrough.
 - ▶ Check that the installation kit can be pushed far enough into the wall breakthrough for the front surface of the wall box to end flush against the solid wall and extend 15 mm beyond the plastering trim.

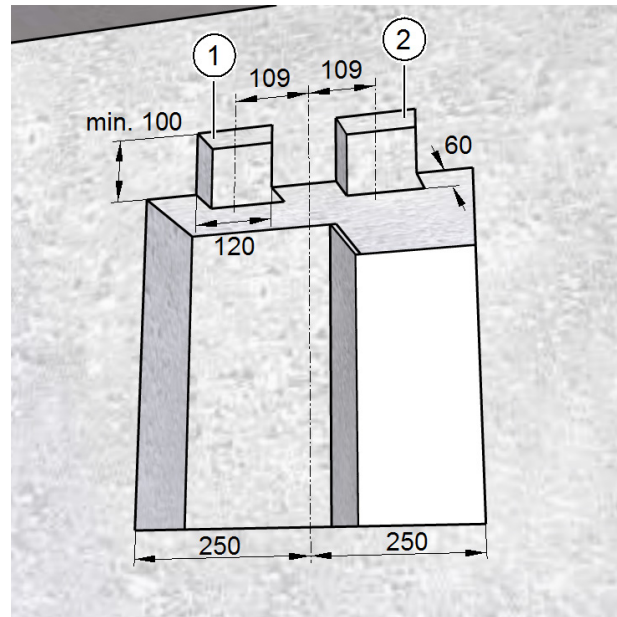


Fig. 8: Chasing out channels for flat ductwork connections, dimensions in millimetres

7.4 Chasing out channels for further flat ductwork

- ▶ Use the wall chaser to chase out channels for the rest of the flat ductwork as shown in your plans. Fig. 9 contains a sample layout for a flat duct. You will find other examples with two flat ducts in Fig. 28 and Fig. 29 on page 19.

NOTE

The dimensions of the channels for the flat ducts are:

- 120 mm wide
- 60 mm deep

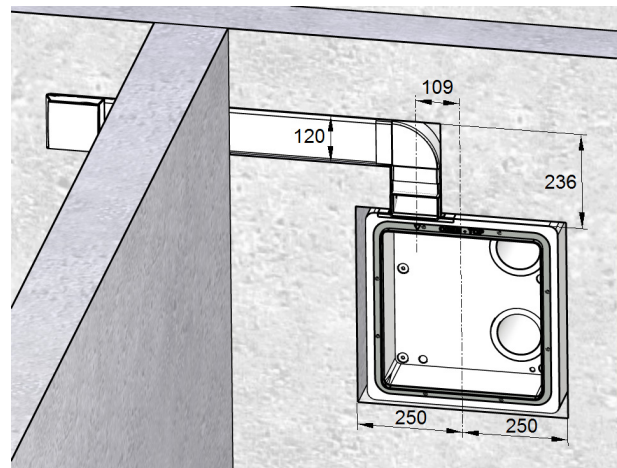


Fig. 9: Flat ductwork layout example, dimensions in millimetres

7.5 Chasing out channels for connecting cables

- ▶ Chase one channel for the mains cable (item 1 in Fig. 10) and one for the control cable, if required (item 3 in Fig. 10).

NOTE

- A separate channel is needed for the control cable.
- The wall channels in Fig. 10 are shown by way of example. Alternative cable ducts are shown as dashed lines (items 2 and 4 in Fig. 10). For the subsequent electrical installation work, we recommend running the mains cable from the left and the control cable (if used) from the right at the wall breakthrough.

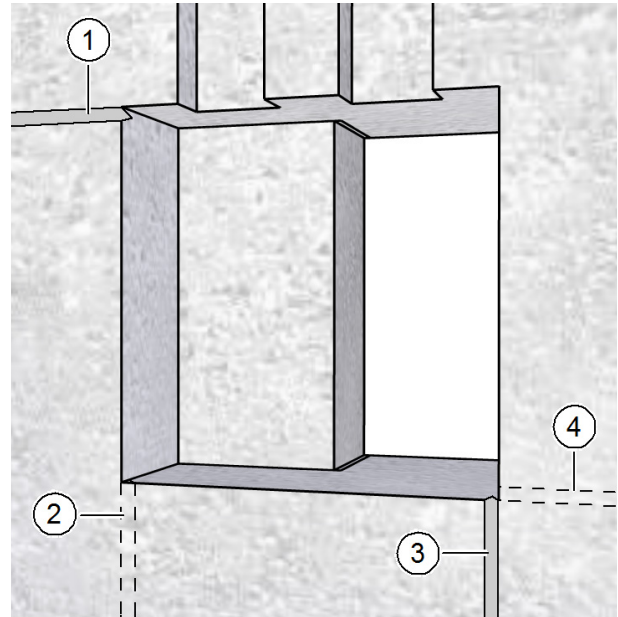


Fig. 10: Chasing out channels for connecting cables

7.6 Running the connecting cables

⚠ DANGER

Potentially fatal voltages.

- The electrical installation work must only be carried out by a qualified electrician.
- The VDE regulations or any special safety regulations applicable in your country apply to the electrical installation work.

NOTE

You will find details of the types of mains cable and control cable suitable for each ventilation unit in Tab. 1 on page 12.

- ▶ Run the mains cable (item 1 in Fig. 11) and the control cable, if required (item 2 in Fig. 11). The cables should extend roughly 250 mm beyond the wall.
- ▶ Fix the mains cable and the control cable (if required) in position.

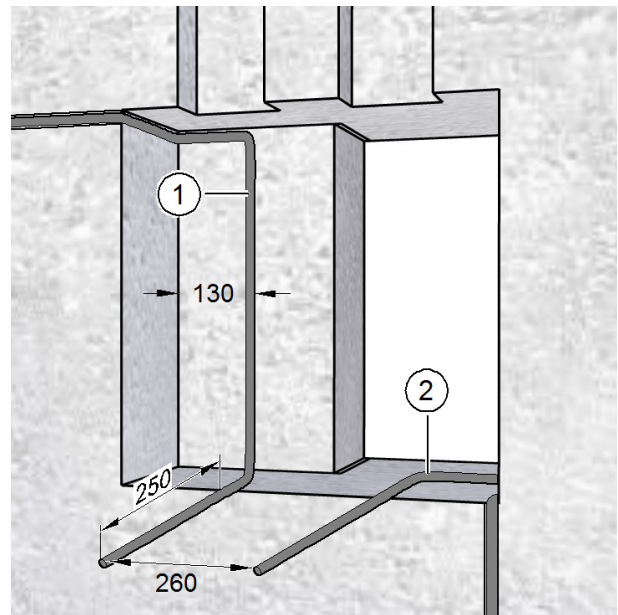


Fig. 11: Running the connecting cables, dimensions in millimetres

Part no.	Type of ventilation unit	Type of mains cable	Type of control cable
5010 5030 5030-2 5031-1 5031-2 5032-1 5032-2	M-WRG-S M-WRG-K M-WRG-K/FC M-WRG-K/ZNH-F M-WRG-K/ZNH-FC M-WRG-K/LCD-F M-WRG-K/LCD-FC	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	-
5010-5	M-WRG-S/BM	NYM-J 5 x 1.5 mm ²	-
5016-1-0	M-WRG-S/Z-S	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 4 x 2 x 0.6 mm ² or J-Y (St) Y 4 x 2 x 0.8 mm ²
5016-1-1 5016-1-1-1 5016-1-1-2	M-WRG-S/Z-T M-WRG-S/Z-T-F M-WRG-S/Z-T-FC	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 10 x 2 x 0.6 mm ² or J-Y (St) Y 10 x 2 x 0.8 mm ²
5016-2-0	M-WRG-S/Z-A	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 4 x 2 x 0.6 mm ² or J-Y (St) Y 4 x 2 x 0.8 mm ²
5016-1-2 5016-1-2-1 5016-1-2-2 5016-2-2	M-WRG-S/Z-KNX M-WRG-S/Z-KNX-F M-WRG-S/Z-KNX-FC M-WRG-S/Z-EIB	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 2 x 2 x 0.8 mm ² or EIB-Y (St) Y 2 x 2 x 0.8 mm ²
5016-2-1	M-WRG-S/Z-24	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 5 x 2 x 0.6 mm ² J-Y (St) Y 5 x 2 x 0.8 mm ²
5013 5014-1 5014-2	M-WRG-S 485 M-WRG-S 485-TF M-WRG-S 485-TFC	NYM-0 2 x 1.5 mm ² or NYM-J 3 x 1.5 mm ²	J-Y (St) Y 3 x 2 x 0.6 mm ² or J-Y (St) Y 3 x 2 x 0.8 mm ²

Tab. 1: Types of mains cable and control cable for each ventilation unit type

7.7 Inserting the wall box

- ▶ Remove the protective cover (item 1 in Fig. 12) and the cardboard insert (item 2 in Fig. 12) from the wall box (item 5 in Fig. 12).
- ▶ Thread the mains cable (item 3 in Fig. 12) through the hole A (item A in Fig. 12).

NOTE

Hole B for the control cable is sealed when the unit is supplied.

- ▶ If necessary, use a screwdriver to punch through the sealed hole (item B in Fig. 12).

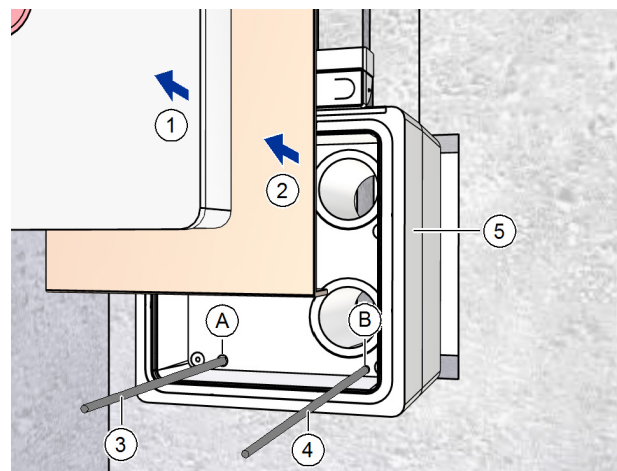


Fig. 12: Inserting the wall box

- ▶ Thread the control cable, if required (item 4 in Fig. 12) through the hole B (item B in Fig. 12).
- ▶ Push the wall box (item. 5 in Fig. 12) fully into the wall breakthrough.

7.8 Inserting the cardboard insert and protective cover

- ▶ Place the cardboard insert (item 1 in Fig. 13) in the wall box (item 6 in Fig. 13).
- ▶ Insert the protective cover (item 2 in Fig. 13) into the wall box (item 6 in Fig. 13) as far as it will go.
- ▶ Check that the red signal cover (item 3 in Fig. 13) is seated in the protective cover.
- ▶ Check that the protective cover (item 5 in Fig. 13) is seated in the 90° brackets (item 4 in Fig. 13).

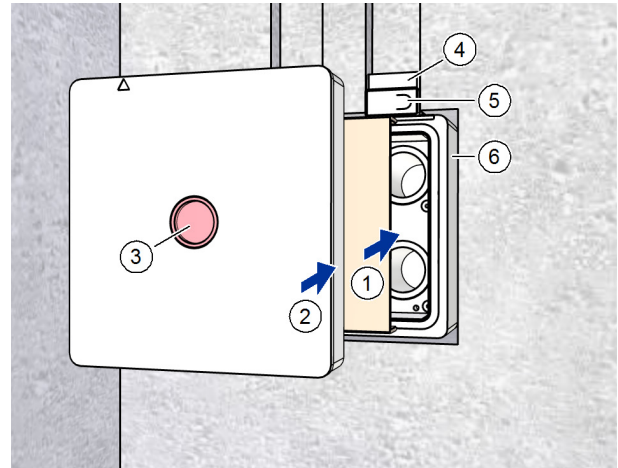


Fig. 13: Inserting the cardboard insert and protective cover

7.9 Fixing the wall box

- ▶ Fix the wall box (item 1 in Fig. 14) in position in the wall breakthrough using wedges (item 2 in Fig. 14).
- ▶ Use the spirit level (item 3 in Fig. 14) to align the wall box so that it is perpendicular and flush with the wall.

NOTE

- ▶ Make sure that the wall box is perpendicular as this is the only way to ensure that any condensation will be carried outside by the 2° pipe fall.
- ▶ If you are using the filler piece, fix it in place on the outer wall using wedges.

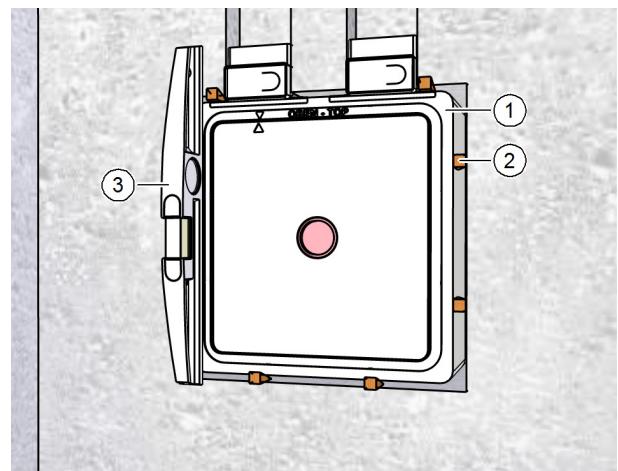


Fig. 14: Fixing the wall box

NOTE

The plastering trim is 15 mm deep (see Fig. 15).

- ▶ If the depth of plaster should be more than 15 mm, position the wall box so that it protrudes sufficiently out of the solid wall. If you do not do this, there is a risk that the ventilation unit will not work correctly.
- ▶ If the interior wall is not perpendicular or flat, align the front surface of the plastering trim (Pos. 1 in Fig. 15) parallel to a plaster stop bead running vertically.

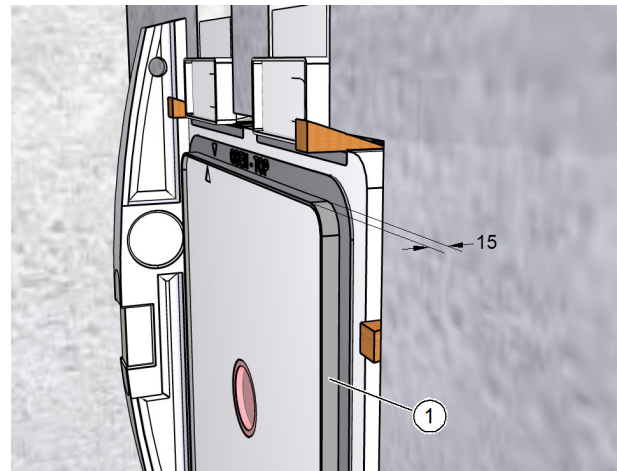


Fig. 15: Depth of plastering trim 15 mm

7.10 Filling gaps around the wall box with foam

NOTE

- ▶ Check that the wall box is seated correctly. Once you have used the foam, you will not be able to align the wall box further.
- ▶ Fill the gaps between the wall box and wall breakthrough all around and continuously with expanding foam (item 1 in Fig. 16) or using another insulating material.
- ▶ Once the foam has hardened, remove any wedges that extend beyond the solid wall.

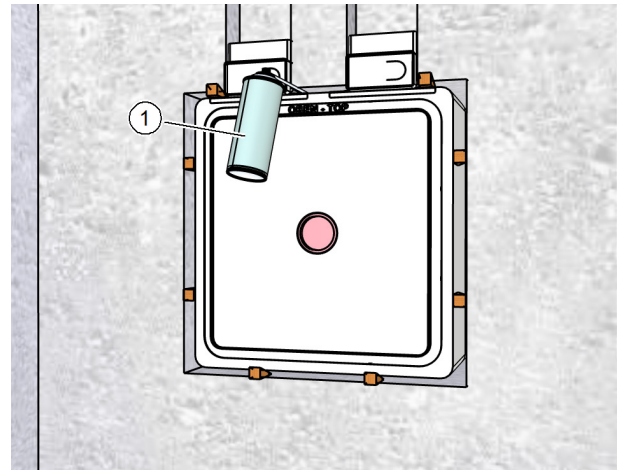


Fig. 16: Filling gaps around the wall box with foam

7.11 Inserting flat ductwork into channels

- ▶ Join individual elements of the flat ductwork to create partial sections and seal every join with a layer of sealing tape 30 mm wide (item 1 in Fig. 17).
- ▶ Insert the first section of the flat ductwork into the 90° bracket on the wall box and seal the join with sealing tape (item 2 in Fig. 17).
- ▶ Insert the sections of flat ductwork into the wall channel one after another and seal every join with sealing tape.
- ▶ Fix the flat ductwork in place with expanding foam. This will improve both the seal and the insulation.

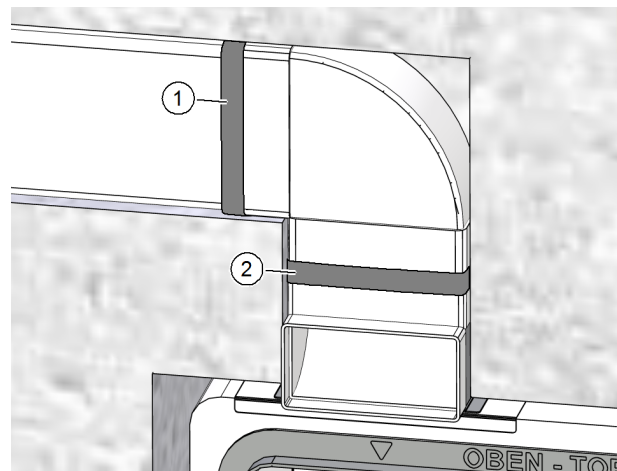


Fig. 17: Fixing a flat ductwork connection with sealing tape

7.12 Riveting the 90° bracket to fixing plate

- ▶ Remove the protective cover for the bracket (item 1 in Fig. 18).
- ▶ Use the riveter to fix the 90° bracket (item 2 in Fig. 18) to the fixing plate (item 4 in Fig. 18) with two blind rivets (item 3 in Fig. 18).
- ▶ Push the protective cover (item 1 in Fig. 18) back into the bracket (item 2 in Fig. 18).

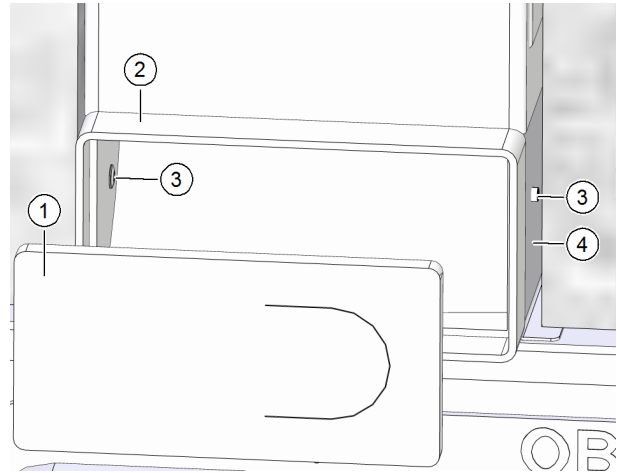


Fig. 18: Riveting the 90° bracket to fixing plate

7.13 Plastering the wall box and flat ducting on the inside

- ▶ Make sure that the signal cover (item 1 in Fig. 19) is seated in the protective cover (item 2 in Fig. 19).
- ▶ Make sure that the protective cover (item 3 in Fig. 19) is seated in the 90° brackets.
- ▶ Cut off any excess expanding foam on the wall box and flat ductwork.
- ▶ Apply the plaster scrim M-WRG-PG (item 4 in Fig. 19) to the wall box and the solid wall.
- ▶ Cover the flat ductwork with plaster scrim.

NOTE

Applying plaster scrim will prevent cracks subsequently forming in the plaster.

- ▶ Plaster the solid wall.

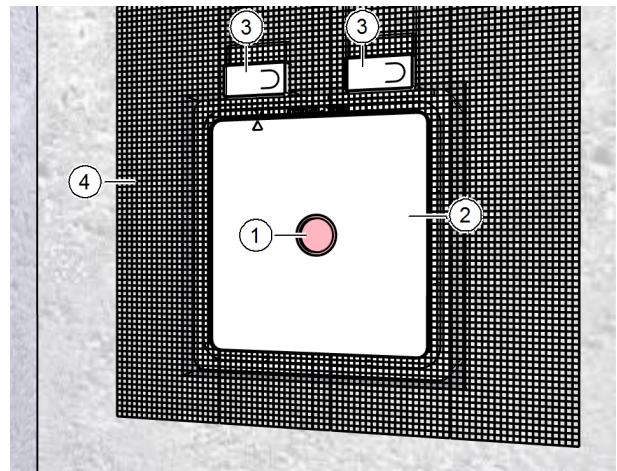


Fig. 19: Plastering the wall box on the inside

7.14 Aligning the wall box on the outside

- ▶ Fill the gaps between the wall box and wall breakthrough all around and continuously with expanding foam or using another insulating material.
- If the solid wall is **less than 36.5 cm** thick:
 - ▶ Use a Styrofoam saw to cut off the excess wall box (item 1 in Fig. 20 and Fig. 21) and filler piece, if necessary (item 2 in Fig. 21), so that they are flush with the solid wall or any insulation.
- If the solid wall is **more than 36.5 cm** thick:
 - ▶ Compensate for thicker walls with continuous pipes. For walls that are 60 cm thick or more, you will need 100 cm long supply and exhaust air pipes (M-WRG-LR 100, part no. 5580).

NOTE

The pipes must be continuous. Pipes that have been joined must not be used as there is a risk of allowing condensation to penetrate the masonry.

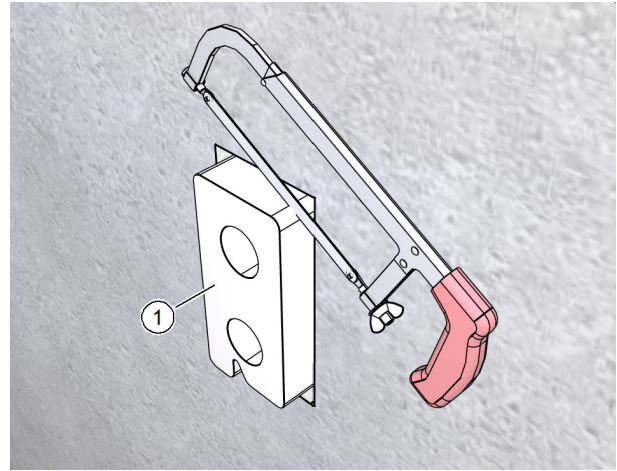


Fig. 20: Aligning the wall box **without** filler piece

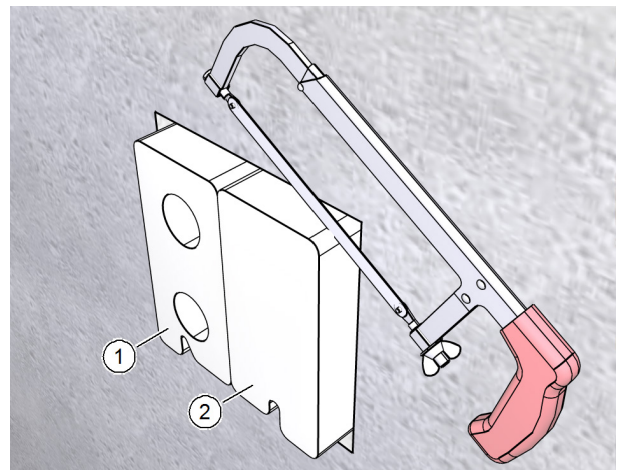


Fig. 21: Aligning the wall box **with** filler piece

7.15 Plastering the wall box on the outside

- ▶ Insert the protective sleeves (item 1 in Fig. 22 and Fig. 23). They should extend beyond the solid wall so that they will end flush with the subsequent plaster coat. The protective sleeves provide the bonding surface for the external plaster.
- ▶ Apply the plaster scrim (item 2 in Fig. 22 and Fig. 23) to the outside of the wall box, to the masonry and to the facade insulation.

NOTE

Applying plaster scrim will prevent cracks subsequently forming in the plaster.

- ▶ Plaster the outer wall.

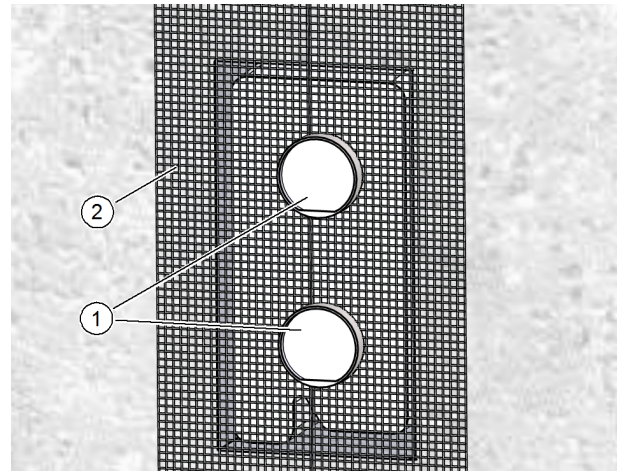


Fig. 22: Plastering the wall box **without** filler piece

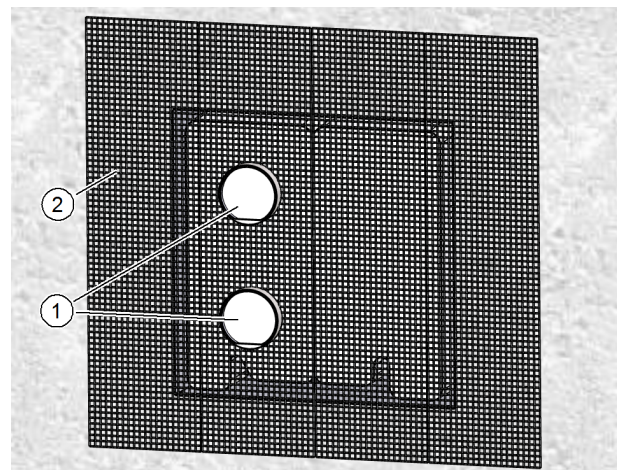


Fig. 23: Plastering the wall box **with** filler piece

7.16 Preparing the wall box for connecting the ventilation pipes

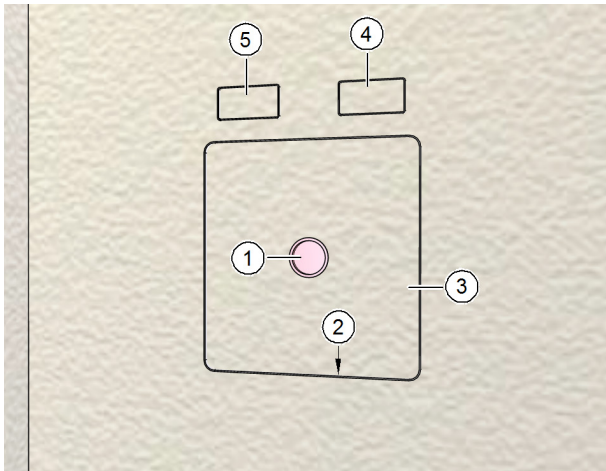


Fig. 24: Wall box plastered on the inside

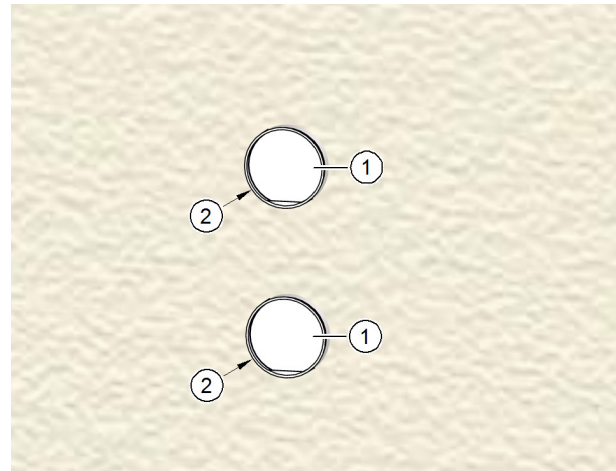


Fig. 25: Wall box plastered on the outside

— Work on the internal wall:

- ▶ Remove the signal cover (item 1 in Fig. 24).
- ▶ Use a blade to score the plaster on the inside of the plastering trim (item 2 in Fig. 24).
- ▶ Carefully remove the protective cover (item 3 in Fig. 24).
- ▶ Remove the protective cover over the supply air duct (item 4 in Fig. 24) and / or exhaust air duct (item 5 in Fig. 24).

— Work on the external wall:

- ▶ Remove the two protective sleeves (item 1 in Fig. 25).
- ▶ Chamfer both pipe breakthrough edges (item 2 in Fig. 25) to roughly 5x45° to create enough space for the silicone bead.

7.17 Inserting the ventilation pipes

- ▶ Push the two ventilation pipes (item 1 in Fig. 26) into the openings in the wall box until they end flush (item 2 in Fig. 26).
- ▶ On the outer wall, mark the excess length of the ventilation pipes to suit the outer wall terminal. See the following table:

Outer wall terminal	Excess
Stainless steel pod, M-WRG-ES	5 - 10 mm
Stainless steel pipe set, M-WRG-ESR	25 - 30 mm
Stainless steel louvred design (surface-mount) M-WRG-ESG/AP	5 mm
Stainless steel louvred design (flush-mount) M-WRG-ESG/UP	depends on the thickness of the plaster

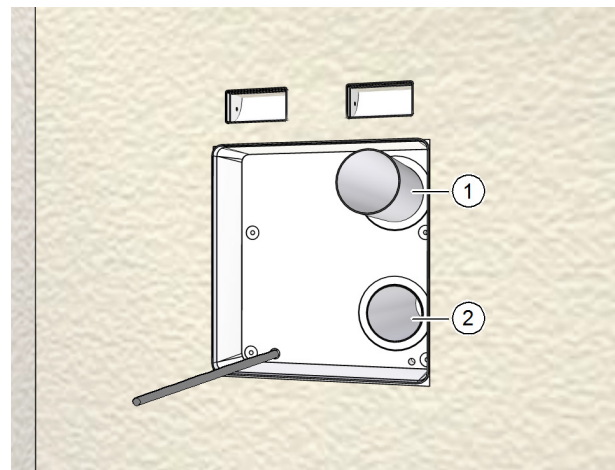


Fig. 26: Inserting the ventilation pipes

- ▶ Remove the ventilation pipes from the openings in the wall box.
- ▶ Shorten the ventilation pipes to the marked length.
- ▶ Deburr the inner and outer ends of the ventilation pipes.

NOTE

If you do not deburr the pipes there is a risk of damaging the seals at the ventilation unit and outer wall terminal.

- ▶ Push the ventilation pipes back into the wall box until they are flush.
- ▶ Use silicone to seal the ventilation pipes into the facade at the outer wall.
- ▶ Fill the chamfers of the pipe breakthrough edges all-round with silicone.

8 Installing the ventilation unit

NOTE

Installation of the ventilation unit in the wall box is described in the “Ventilation unit installation manual M-WRG-S and M-WRG-K”, part no. 5300-10.

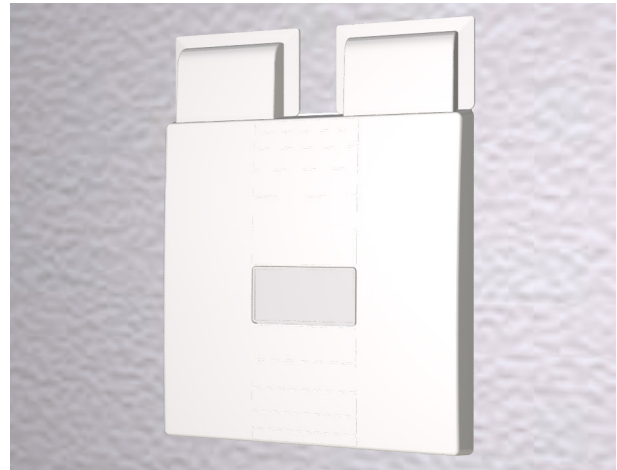


Fig. 27: Ventilation unit installed

9 Other flat ductwork layout examples

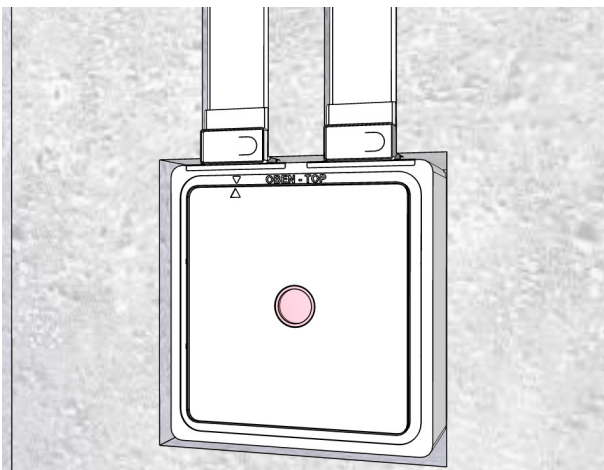


Fig. 28: Flat ducts, straight

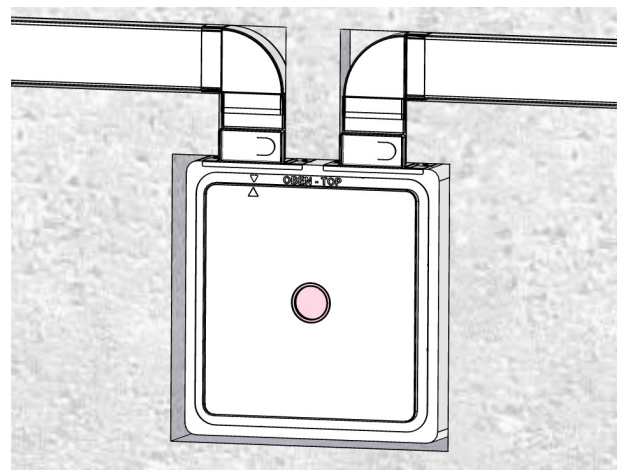


Fig. 29: Flat ducts, angled



We have checked the content of this publication for conformity with the unit described in it. There may nevertheless still be differences, so we cannot guarantee complete accuracy.

The information in this publication is regularly checked and any necessary corrections are made in the subsequent editions.

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