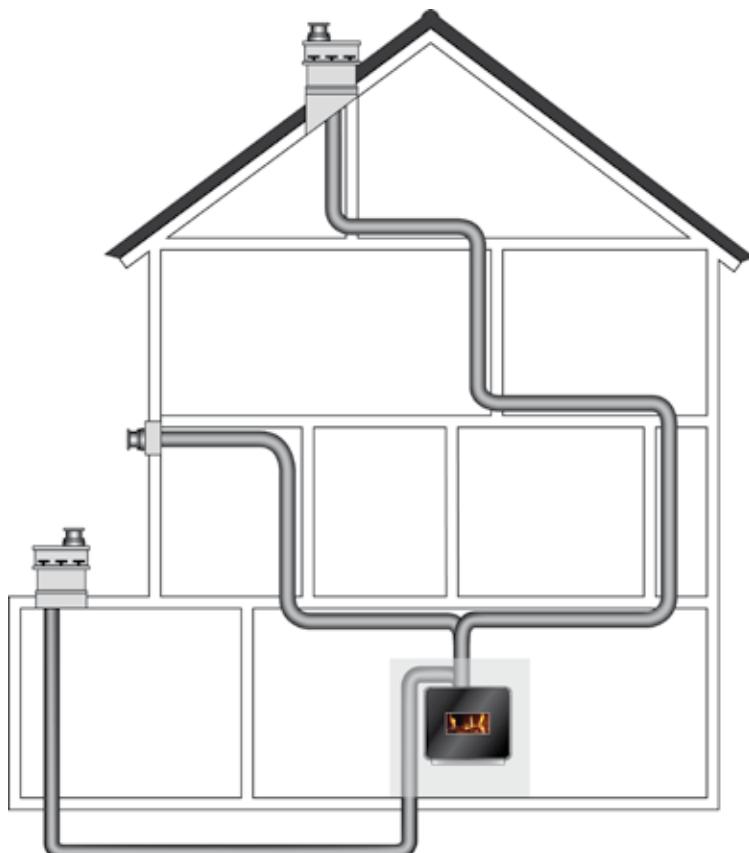
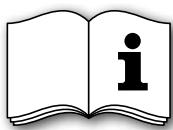


# PowerVent®



Installation manual (GB)



Store this document in a safe place



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## Foreword

As a manufacturer of gas-fired heating appliances, DRU is developing and producing products in accordance with the highest possible quality, performance and safety requirements.

This guarantees that the user will be able to enjoy using his product for many years to come.

This PowerVent® system has a CE marking, which means that it complies with the essential requirements of the European gas appliance directive.

As an installer, you must be competent in the field of atmospheric gas-fired heating and electricity.

The installation manual will provide you with the information you need to install the PowerVent® system in such a way that the appliance to be placed will operate properly and safely in combination with this system.

This installation manual will replace the section 'flue gas discharge / combustion air supply system' in the installation manual for the appliance.

This manual will discuss the installation of the PowerVent® system and the accompanying regulations. In addition, you will find information on maintenance, as well as possible malfunctions and their possible causes. Appendix 2 contains the technical specifications that are needed for connecting the PowerVent® system.

The figures are included at the back of this manual (Appendix 3).

**Carefully read this installation manual and use it in combination with the installation manual of the appliance to be placed.**

The following symbols are used in the manual to indicate important information:

→ Work to be performed

Tip Suggestions and recommendations

Caution You will need these instructions to prevent problems that might occur during installation and/or use.

Caution You need these instructions to prevent fire, personal injury or other serious damages.

**After delivery, you should give this installation manual to the user.**

## 1. Introduction

The PowerVent® system is a combined, concentric flue gas discharge / combustion air supply system with a forced discharge of the flue gases. It is an additional, independent system that can be connected to various DRU atmospheric gas-fired heating appliances.

The forced discharge of flue gases is realized by means of a fan connected to the outlet of the flue gas discharge.

By using a ventilator, the flue gases can be discharged over a longer distance than was previously possible for DRU appliances. In order to prevent the fan from malfunctioning, a minimum length is required for the PowerVent® system. The maximum length depends on the number of bends in the system. In Appendix 2 "Technical specifications" you will find the requirements for minimum and maximum length.

The passage to the outside can be made by means of a wall terminal or a roof terminal.

The roof terminal can end in a sloping or a flat roof. In case of a roof terminal, the fan unit can be placed on the inside or outside of the roof. The advantage of a fan unit on the inside of the roof, is that it will be easier to reach. If it is placed on the outside of the roof, you will need an addition to the fan unit, the rooftop unit. DRU has a number of rooftop units in its range.

You will select whether the fan unit is placed on the inside or outside of the roof, when you purchase the PowerVent® system.

The diameter of the concentric PowerVent® system is 60/100 mm. This system is connected by means of an adapter to the flue spigot of the appliance. DRU has a number of concentric adapters in its range.

When installing the concentric system in rooms prone to moisture, you must use a coated air supply pipe.

It can be supplied through your dealer

## 2. CE declaration

We hereby declare that the design and construction of DRU's flue gas discharge / combustion air supply system comply with the essential requirements of the Gas Appliance Directive.

Product: **flue gas discharge / combustion air supply system**

type: **PowerVent®**

Applicable EEC directives: **2009/142/EC**

**2006/95/EC**

**2004/108/EC**

Applied harmonized standards: **NEN-EN-613**

**NEN-EN-613/A1**

**NEN-EN-613/A2**

**NEN-EN-60335-1**

**NEN-EN-60335-2-102**

Internal measures by the company guarantee that flue gas discharge / combustion air supply systems produced in series comply with the essential requirements of the prevailing EEC directives and the standards derived from them. This declaration will lose its validity if adjustments are made to the appliance, without prior written permission by DRU.

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## 3. SAFETY

### 3.1 General



- Caution**
- Carefully read this chapter on safety, before you start performing installation or maintenance work;
  - Please observe the general regulations and the precautions/safety instructions in this manual.

### 3.2 Regulations

Please install the PowerVent® system, including the electrical installation, in accordance with the applicable national, local and constructional (installation) regulations.

In the Netherlands, the Buildings Decree (Bouwbesluit) applies.

### 3.3 Precautions / safety instructions during installation

Carefully observe the following precautions/safety regulations:

- ➡ you should only install and maintain the PowerVent® system if you are a competent installer in the field of gas-fired heating and electricity;
- ➡ Install the bracket with PowerVent® control components directly on the bracket with the control components for the appliance in the control hatch, as explained in the manual. The control hatch is obligatory when installing PowerVent® and is available via the manufacturer;
- ➡ Take into account a larger chimney breast due to the larger construction depth of the control hatch with PowerVent® control. Maintain a distance of 50mm between the bracket with the electronic components and the appliance. This means that the minimum construction depths are as follows: 266 mm for Mertik and 280mm for Honeywell;
- ➡ do not make any changes to the system;
- ➡ take the minimum length of the PowerVent® system into account;
- ➡ place the adapter directly on the appliance's flue spigot;
- ➡ place the measuring unit (venturi) preferably vertical, within 1 metre of the flue spigot;
- ➡ connect the pressure gauge pipes leak-tight, before the chimney breast is placed;
- ➡ make sure the pressure gauge pipes are free from parts that will become hot;
- ➡ avoid dirt, including metal particles in pipes and connections;
- ➡ avoid kinks in the pipes;
- ➡ place electric wiring in such a way that it is free from the appliance;
- ➡ for connecting the ventilator, you must use a control cable that complies with the applicable standard;
- ➡ when performing work at the installation, you must disconnect it from the power supply by removing the 230V plug from the socket;
- ➡ replace damaged mains sockets in order to avoid dangerous situations;
- ➡ use a coated air supply pipe when installing in rooms prone to moisture.

## 4. Instructions

Dru uses two control systems, Mertik (RCE) and Honeywell (RCH).

- In case of a Mertik system, please check whether the code number on the receiver ends with 'AUT' (see fig. 8a).
- If this is not the case, please contact DRU Service;
- Take into account a larger chimney breast due to the larger construction depth of the control hatch with PowerVent® control. Maintain a distance of 50mm between the bracket with the electronic components and the appliance. This means that the minimum construction depths are as follows: 266 mm for Mertik and 280mm for Honeywell;
- place a 230V connection with earthing near the appliance, as close as possible to the control hatch;
- test the complete system for a correct operation, before closing the chimney breast;
- In case of a burning pilot flame, the PowerVent fan will switch on and off automatically (10 minutes on and 20 minutes off) to prevent condensation. This only applies when using PowerVent in combination with a Mertik system.

## 5. Principle of the ignition cycle

Below you will find a brief description of how an appliance, that is connected to the PowerVent® system, is ignited; see fig. 1.

The following corresponding letters can be found in the figure:

- |                             |                         |
|-----------------------------|-------------------------|
| A. Remote control           | G. Reduction to ø100/60 |
| B. Receiver                 | H. Pressure sensor      |
| C. Gas control              | I. Safety valve         |
| D. PowerVent control unit   | J. Gas supply           |
| E. Fan                      | K. Display              |
| F. Measuring unit (Venturi) |                         |

The Mertik system uses a pilot flame to ignite the appliance. Appliances with Honeywell control ignite directly on the burner.

In both cases, the appliance is switched on with a remote control (A). Via the remote control, the receiver (B) will get the signal to start the ignition process. At the same time, the control unit (D) of the PowerVent system will get a start signal from the receiver. In case of the Mertik system, the pilot flame is ignited at that moment and the fan (E) is switched on. In the case of Honeywell, the fan will switch on and ignition starts after 8 seconds. After ignition, the operation of both systems is identical. It will be determined whether sufficient flow is available in the discharge system. For this purpose, the pressure sensor (H) measures the differential pressure over the measuring unit (venturi, F). If the differential pressure exceeds the value set on the control unit (D), the safety valve (I) will be opened and the gas to the main burner of the appliance is released.

If the differential pressure is below the set value, the main burner of the appliance will not ignite. In the malfunction table in Chapter 10 you will find possible causes and solutions.

## 6. Removing the packaging

Note the following items when removing the packaging of the PowerVent® system:

- Check the system for damages during transport.
- If necessary, contact DRU Service.
- Check whether all parts have been supplied.
- In Appendix 1 / Table 2 you can see which parts you should have after removing the packaging.
- Contact DRU Service if you do not have all the parts after you finished removing the packaging.
- Dispose of packaging in accordance with local regulations.

## 7. Installation

Read this manual carefully to ensure a proper and safe operation of the appliance connected to the PowerVent® system.

**Caution** Install the PowerVent® system in the order described in this chapter.

### 7.1 Regulations

- Observe the applicable national, local and constructional (installation) regulations for the PowerVent® system as well as the electric installation.
- Observe the regulations/instructions stated in this manual.

## 7.2 Electric connection

At the appliance, a 230V connection with earthing must be placed, as close as possible to the control hatch.



- Caution** - Replace damaged mains sockets in order to avoid dangerous situations.

## 7.3 Placing the PowerVent® system

The PowerVent® system allows many different configurations; see fig. 2a to 2c. The system will be installed after the appliance has been placed on its final location.

The bracket with the PowerVent® control components (control unit, pressure adjustment unit, pressure sensor and safety valve) must be connected to the controller of the appliance (such as the gas control), so that the whole unit can be placed in the control hatch as described in the manual.

The pressure gauge pipes can no longer be reached after the chimney breast has been placed. Leaks will affect the gauge signal to the pressure sensor and therefore the combustion process. That is why these pipes must be connected leak-tight, BEFORE the chimney breast is completed.



- Caution** - Make sure the PowerVent® control system is properly connected to the control system of the appliance and fits in the control hatch;  
 - Connect the pressure gauge pipes to the measuring unit, before the chimney breast is completed;  
 - Check whether the pressure gauge pipes are connected leak-tight before finishing the chimney breast.  
 - The aluminium pipes must be protected against possible corrosive effects, e.g. as a result of moisture, fallen down mortar, dirt fallen down from the chimney, etc. The pilot flame pipe must be kept permanently free from the ground and the walls of the area in which the appliance is built. When installing in an existing fireplace, or if it is not possible to keep the pipes free, the pipe should be protected against corrosion by means of a jacket".  
 - Take into account a larger chimney breast due to the larger construction depth of the control hatch with PowerVent® control. Maintain a distance of 50mm between the bracket with the electronic components and the appliance. This means that the minimum construction depths are as follows: 266 mm for Mertik and 280mm for Honeywell.



- Tip** When connecting the assembled PowerVent® control components and Mertik or Honeywell control components, we recommend making a gas connection with an approved, flexible SS gas pipe. This will significantly simplify adjustments and troubleshooting, as the whole assembly can be removed from the hatch.

For the benefit of the installation, the PowerVent® system has been subdivided in a number of parts:

- flue gas / combustion air system; see section 7.3.1;
- pressure gauge pipes; see section 7.3.2;
- control system; see section 7.3.3.

### 7.3.1 Flue gas / combustion air system

The passage to the outside can be made with a wall terminal, as displayed schematically in fig. 2d (see section 7.3.1.1), as well as a roof terminal (see section 7.3.1.2).

The roof terminal can be placed in a sloping or a flat roof. When a roof terminal is chosen, the fan unit can optionally be placed on the inside of the roof (see schematic display in fig. 2e and fig. 2f) or on the outside (see schematic display in fig. 2g and fig. 2h). For placement of the fan unit on the outside of the roof, you will need an additional rooftop unit.

The solution on the inside of the roof can be made with a wall terminal (see fig 2i). Chapter 8 states a few conditions. The appliance must be adjusted in such a way that it will function properly in combination with the PowerVent® system; see chapter 8 of this manual, Adjusting the appliance.

The diameter of the concentric PowerVent® system is 60 / 100 mm. This system is connected by means of an adapter to the flue spigot of the appliance.



- Caution** - For the PowerVent® system you should only use the concentric flue gas discharge material supplied by DRU. This system has been tested together with the appliance. DRU cannot guarantee a proper and safe operation of other systems and does not accept any liability for this;  
 - Take the minimum length of the PowerVent® system into account; see section 8.2.3 and appendix 2 with the technical specifications;  
 - Take the maximum length of the PowerVent® system into account; see sections 8.2.4 and 8.2.5 and appendix 2 with technical specifications;  
 - Place the adapter directly on the appliance's flue spigot; see fig. 1, G;  
 - Place the measuring unit (venturi) preferably vertical, within 1 metre of the flue spigot; see fig. 1, F;  
 - Place the fan unit correctly;  
 - For connecting the ventilator, use a control cable that complies with the applicable standard;

- Place the ventilator's control cable in a cable protection sleeve;
- Make sure the pressure gauge pipes are free from parts that will become hot;
- Maintain a distance of at least 50 mm between the outside of the PowerVent® system and the walls and/or the ceiling. If the system is built in (for instance) a cove, it should be made with non combustible and heat-resistant material all around it;
- Use a coated air supply pipe when installing in rooms prone to moisture;
- Use non combustible and heat-resistant insulation material when passing through combustible material;
- The first 5 metres of the air supply / flue gas discharge pipe must be safely separated from combustible material by means of a non combustible plate, if the distance between the pipe and the combustible material is less than 100 mm. If the pipe is surrounded by combustible material, it should be sleeved with non combustible material and the sleeve must be ventilated.
- Heat bridges, e.g. by means of mounting brackets, should be avoided.
- For larger distances than 5 metres, a 50 mm safety distance from combustible materials should be observed.
- The manufacturer is unable to accept liability for discharge pipes poured in concrete or buried discharge pipes, as the pipes will be out of reach. If you want this after all, we recommend the following: If the discharge pipe is poured in concrete, it should be surrounded by a heat resistant 200°C pipe sleeve. If the discharge pipe runs through the ground, it will have to be surrounded by a durable 200°C and water-tight pipe sleeve. It should be placed with a slope (1cm/m) towards the inside and a condensation discharge should be placed, even if this is not prescribed according to table 3. There should be no locations where possible condensation water cannot be discharged. If necessary, take measures to prevent rainwater or sprinkler water from entering the system.

- !Caution**
- Make sure the fan unit can be reached for maintenance;
  - Make sure the control cable is sufficiently long;
  - Some heat-resistant insulation materials contain volatile components that will spread an unpleasant smell for a prolonged time; these are not suitable.

### 7.3.1.1 Application with wall terminal

**⚠ Caution** The temperature of (the outside of) the concentric system can reach 200 °C at the wall.

Placing the PowerVent® system is done as follows:

- ➡ Check whether the concentric system to be applied complies with the minimum and maximum allowed length; see section 8.2.3 and 8.2.4 and appendix 2 with the technical specifications.
- ➡ Build the system up from the flue spigot of the appliance.
- ➡ Place the adapter directly on the appliance's flue spigot.
- ➡ Place the measuring unit (venturi) preferably on the adapter.
- ➡ Connect the concentric pipe pieces and the bends.

**⚠ Caution** Make sure that the clip binding with silicone sealing ring is mounted correctly, in order to prevent leakage at the connections.

- ➡ On each connection, apply a clip binding with silicone sealing ring.
- ➡ Use a self-tapping screw to fix the clip binding to the pipe on locations that cannot be reached after installation.
- ➡ Apply sufficient clamps, so that the weight of the pipes does not rest on the appliance.
- ➡ Remove the cover of the fan unit.
- ➡ Make a hole in the wall for the concentric system (see fig. 3a for the dimensions and fig. 3b).
- ➡ Make a hole in the wall for the ventilator's control cable protection sleeve (see fig. 3a for the dimensions and fig. 3b).
- ➡ Fix the fan unit to the wall (see fig. 3a for the dimensions and fig. 3c).
- ➡ Cut the pipe piece that is used for connecting to the fan unit to size.

**!Caution** Make sure that the right insertion length is maintained.

- ➡ Connect the pipe piece to the fan unit.

**⚠ Caution**

- Make sure the inlet of the fan unit properly connects to the concentric system;
- Make sure that the control cable is connected exactly as indicated in fig. 3d in order to avoid contact between the cable and the hot ventilator.

- ➡ Connect the control cable to the connector (see fig. 3d).
- ➡ Lay the control cable - provided with cable protection sleeve - towards the appliance.
- ➡ Kit the fan unit all around with a suitable kit (see fig. 3e).
- ➡ Place the cover back on the fan unit (see fig. 3f).
- ➡ Place the flue gas discharge pipe (see fig. 3g).
- ➡ Fix the cover with the self-tapping screws supplied (see fig. 3h).

### 7.3.1.2 Application with roof terminal

The roof terminal can end in a sloping or a flat roof. In case of a passage through the roof, the fan unit can be placed on the inside or outside of the roof. If it is placed on the outside of the roof, you will need an addition to the fan unit, the rooftop unit (see the schematic display in fig. 2g and 2h).

#### 7.3.1.2.1 Placing the fan unit on the inside of the roof

Placing the PowerVent® system is done as follows:

- ➡ Check whether the concentric system to be applied complies with the minimum and maximum allowed length (see section 8.2.3 and 8.2.4 and appendix 2 with the technical specifications).
- ➡ Build the system up from the flue spigot of the appliance.
- ➡ Place the adapter directly on the appliance's flue spigot.
- ➡ Place the measuring unit (venturi) preferably on the adapter.
- ➡ Connect the concentric pipe pieces and the bends.



**Caution** Make sure that the clip binding with silicone sealing ring is mounted correctly, in order to prevent leakage at the connections.

- ➡ On each connection, apply a clip binding with silicone sealing ring.
- ➡ Use a self-tapping screw to fix the clip binding to the pipe on locations that cannot be reached after installation.
- ➡ Apply sufficient clamps, so that the weight of the pipes does not rest on the appliance.
- ➡ Place the strip that is used for connecting the fan unit's clamps (see fig. 4a, 1).
- ➡ Attach the fan unit's clamps to the strip (see fig. 4a, 2).
- ➡ Remove the cover of the fan unit.
- ➡ Place the fan unit on the clamps.

**Tip** The fan unit can be turned and can therefore be placed on the clamps in four ways. Choose the way that is most practical for you.

- ➡ Secure the fan unit with the self-tapping screws supplied.
- ➡ Connect the control cable to the connector (see fig. 4b).

**Caution** Make sure the control cable is sufficiently long, because of maintenance work.



- Caution**
- Make sure that the control cable is connected exactly as indicated in fig. 4b in order to avoid contact between the cable and the hot ventilator;
  - Make sure the cover is placed correctly on the fan unit, so that the outlet of the fan connects to the outlet of the cover.

- ➡ Lay the control cable - provided with cable protection sleeve - towards the appliance.
- ➡ Place the cover back on the fan unit (see fig. 4c).
- ➡ Secure the cover with the self-tapping screws supplied.
- ➡ Connect the concentric system to the fan unit.

**Caution** Use a telescopic pipe piece for connecting the concentric system. As a result, it will be easier to perform maintenance work.

- ➡ Place the roof terminal on the fan unit.

**Caution**

- Make sure that the universal tile fits well with the surrounding tiles;
- Make sure that the adhesive plate fits well onto the flat roof.

### 7.3.1.2.2 Placing the fan unit on the outside of the roof

Placing the PowerVent® system is done as follows:

- ➡ Check whether the concentric system to be applied complies with the minimum and maximum allowed length (see section 8.2.3 and 8.2.4 and appendix 2 with the technical specifications).
- ➡ Build the system up from the flue spigot of the appliance.
- ➡ Place the adapter directly on the appliance's flue spigot.
- ➡ Place the measuring unit (venturi) preferably on the adapter.
- ➡ Connect the concentric pipe pieces and the bends.

**Caution** Make sure that the clip binding with silicone sealing ring is mounted correctly, in order to prevent leakage at the connections.

- ➡ On each connection, apply a clip binding with silicone sealing ring.
- ➡ Use a self-tapping screw to fix the clip binding to the pipe on locations that cannot be reached after installation.
- ➡ Apply sufficient clamps, so that the weight of the pipes does not rest on the appliance.
- ➡ Make a hole in the roof for the concentric system.
- ➡ Make a hole in the roof for the ventilator's control cable protection sleeve.
- ➡ Place the rooftop unit on the roof (see fig. 5a for application with a flat roof).
- ➡ Remove the cover of the fan unit.
- ➡ Place the fan unit on the rooftop unit.
- ➡ Cut the pipe piece that is used for connection to the rooftop unit to size.

**Caution** Make sure that the right insertion length is maintained.

- ➡ Connect the pipe piece to the rooftop unit.

**Caution**

- Make sure the inlet of the fan unit properly connects to the concentric system;
- Make sure that the control cable is connected exactly as indicated in fig. 4b in order to avoid contact between the cable and the hot ventilator;
- Make sure the cover is placed correctly on the fan unit, so that the outlet of the fan connects to the outlet of the cover;
- When placing the upper part and the cover, make sure the outlets connect onto each other.

- ➡ Attach the rooftop unit and the fan unit to each other, using the self-tapping screws supplied.
- ➡ Connect the control cable to the connector (see fig. 4b).
- ➡ Lay the control cable - provided with cable protection sleeve - towards the appliance.
- ➡ Place the cover back on the fan unit (see fig. 5b).
- ➡ Place the upper part and the cover of the version that is placed on the outside of the roof (see fig. 5b).
- ➡ Attach the upper part and the cover to the fan unit, using the self-tapping screws supplied.

**Caution**

- Make sure that the universal tile of the rooftop unit fits well with the surrounding tiles;
- Make sure that the adhesive plate fits well onto the flat roof.

### 7.3.2 Pressure gauge pipes

The pressure gauge pipes are attached between the measuring unit (fig. 1, F) and the pressure sensor (fig. 1, H) in order to measure the differential pressure over the measuring unit. The first part of the pressure gauge pipes is made of aluminium. The aluminium pipes must be mounted in such a way that they do not touch the parts that become hot. Moreover, the gauge pipes must be attached without strain. The aluminium gauge pipes run until below the appliance. After that they will change into silicone hoses. Finally, the silicone hoses are connected to the pressure sensor. The pipes must be cut to size on site.

Follow the next steps:

- ➡ Connect the brass elbow joints (2 items) to the measuring unit; see fig. 6.

**Caution**

- Tighten the joints until they are leak-tight; after installation you will no longer be able to reach them;
- Make sure the pressure gauge pipes are free from parts that will become hot;
- Remove any burrs after shortening the pipes;
- Avoid dirt, including metal particles in pipes and connections;
- Avoid kinks in the pipes;
- Make sure that the transition from aluminium pipe to silicone hose can always be reached.

- ➡ Roll out the aluminium pipes towards the appliance.
- ➡ Connect the aluminium pipes to the brass joints; see fig. 6.
- ➡ Attach the aluminium pipes in such a way that there is no strain.
- ➡ Determine the length of the aluminium pipes.
- ➡ Saw the pipes to size.
- ➡ Connect the silicone hose to the aluminium pipes.

**!Caution** The silicone hoses can only be connected to the pressure sensor, after the box with the control system has been placed. The pressure sensor is in the box with the control system.

### 7.3.3 Control system

The control system consists of components that are needed for the safe operation of the appliance in combination with the PowerVent® system. These components (control unit, pressure adjustment unit, pressure sensor and safety valve) are mounted on a bracket that can be connected to the bracket with the Mertik or Honeywell control components, in order to mount them in the obligatory control hatch. This control hatch is available via the manufacturer. Before placing the PowerVent® control system plus Mertik or Honeywell controller combination in the control hatch, a number of components must be connected or adjusted, and the PowerVent® system should be tested for proper operation.



- Caution**
- The PowerVent® system is only permitted in combination with an accompanying, lockable control hatch that comes with the appliance, in order to be able to meet the safety requirements. This control hatch is available via the manufacturer;
  - Take the safety requirements into account when placing the control hatch, as described in the installation manual for the appliance concerned;
  - Place the safety valve in the correct flow direction in order to prevent leakage of the valve;
  - Connect the correct silicone hose to the correct connection point on the pressure sensor; see fig 6, P1 and P2;
  - Remove any residual glue after loosening the joint on the gas control, in order to prevent them from entering the gas flow.

Place the control system as follows:

- ➡ In case of a Mertik system, connect the PowerVent® control components between the gas control and main burner. The bracket with the PowerVent® control components will fit on the bracket with the Mertik control components in only one way (see fig. 7a):
  - On the gas control, loosen the joint of the gas pipe that runs to the main burner;
  - Remove the joint;
  - Attach the supplied point piece to the safety valve of the PowerVent® control system (see fig. 7a, A and G2);
  - Connect the gas pipe that runs to the main burner to this (A and G2);
  - Slide the supplied clamp swivel (B) and clamp bush (C) over the pre-mounted gas pipe;
  - Place the bracket with the PowerVent® control components on the bracket with the Mertik control components, in such a way that the pre-mounted gas pipe with the clamp swivel (B) and clamp bush (C) can be screwed into the exit (G1) of the gas control;
  - Tighten the gas pipe with clamp swivel (B) and clamp bush (C) in the exit (G1);
  - Attach the 2 brackets with the 2 self-tapping screws (P);
- ➡ In case of a Honeywell system, connect the PowerVent® control components before the gas control. The bracket with the PowerVent® control components will fit on the bracket with the Honeywell control components in only one way (see fig. 7b):
  - Place the bracket with the PowerVent® control components on the bracket with the Honeywell control components, in such a way that the pre-mounted gas pipe with the point piece (B) can be screwed into the entrance (G2) of the gas control;
  - Tighten the gas pipe with the point piece (B) in the entrance (G2);
  - Attach the 2 brackets with the 2 self-tapping screws (P);
  - Attach a point piece (A) to the safety valve (G1);
  - Connect the gas supply to the point piece (A).
- ➡ Pull the pressure gauge pipes and the ventilator's control cable to the outside through the control hatch. (see fig. 7c);
- ➡ Connect the pressure gauge pipes to the pressure sensor, so that (see fig. 6 and for Mertik fig. 7a or for Honeywell fig. 7b):
  - the pipe comes as close as possible to the appliance's flue spigot at P1;
  - the other pipe ends at P2.

- Connect the fan unit's three-core control cable that is suitable for 230V to the connector (V1) of the control unit. Ensure an earthed connection and use the colours brown, blue and green-yellow (for Mertik: fig. 7a; for Honeywell:fig. 7b);
- If necessary, remove the receiver from the control hatch;
- Connect the supplied relay cable.
- Connect the long lead of the relay cable to the connector (V2) in the control system (for Mertik see: Fig. 7a; for Honeywell: Fig. 7b);
- Connect the short lead of the relay cable (for Mertik: see fig. 8a; for Honeywell: see fig. 8b).

**!Tip** Use a 230V connection with adapter as power supply for the receiver, in order to prevent malfunctions as a result of empty batteries in the receiver (Mertik).

- Insert the 230V plug of the control unit in the earthed wall socket intended for that purpose.

Set the pressure difference on the adjustment unit, before building in the control system.



- Caution**
- The differential pressure that has to be set depends on the appliance;
  - Only set the differential pressure;
  - The other settings of the adjusting unit must remain unchanged.

The differential pressure is adjusted as follows (for the values, see appendix 2 with the technical specifications):

- Hold down the P key of the adjusting unit for at least 10 sec. (see for Mertik: Fig. 7a; for Honeywell: Fig. 7b, I1 and fig. 9): The display will show the following read-out: 0 00 (flashing) : 01.
- Then, briefly press the P key:
- The read-out on the display will change from 01 to 02.
- Set the correct value, using the "+" and "-" keys.
- Hold down the P key for at least 5 sec when the correct value has been reached:
- If the screen returns with the original display, the pressure is adjusted.

The PowerVent® system is now ready to be tested.

**!Tip** Testing should be performed prior to finishing the chimney breast and before mounting the assembly of PowerVent® control components and Mertik or Honeywell control components in the control hatch.



- Caution** Check all connections for gas-tightness, before igniting the appliance.

- Test the PowerVent® system for proper operation.

If the system operates to your satisfaction, proceed as follows:

- Isolate the system from its supply voltage;
- Place the complete assembly of appliance controller and PowerVent® controller in the control hatch (see fig. 7a or 7b);

**!Caution** Make sure that hereafter the control hatch is locked in accordance with the regulations.

- Reconnect the voltage supply to the system;

**!Tip** It is recommended to measure whether the required pressure difference is achieved and only then close the chimney breast or cove around the discharge system.

This does not necessarily require a burning appliance, but can also be performed on 'air'.

This will prevent the chimney breast from having to be broken up in case of problems.

## 8. Adjusting the appliance

This chapter provides the technical specifications that are required for the PowerVent® system to operate properly in combination with the appliance. Appendix 2, table 3 contains the conditions; the conditions depend on the type of appliance.

The appliance must be installed without air inlet guide(s) and without the restrictor slide that is supplied with the appliance.

**!Caution** Consult the most recent installation manual of the appliance for possible additional settings. The most recent installation manual can be found on [www.druservice.com](http://www.druservice.com).

### 8.1 Points of departure

Application of the PowerVent system is allowed up to a certain maximum length.

**Caution** Each bend is calculated as 2 metres. No distinction is made between 45° and 90° bends.

For example: According to table 3 in appendix 2, the maximum allowed length in case of the Milo is 36 metres. If three bends are used, a maximum of 30 metres of concentric pipe may be connected.

### 8.2 Explanation of the table

Below, the layout of table 3 in appendix 2 is explained.

#### 8.2.1 Type of appliance

This column lists the appliances that are suitable for connection to PowerVent®.

#### 8.2.2 Differential pressure

This column shows the differential pressure, in Pascal, which has to be set on the adjusting unit.

#### 8.2.3 Minimum length

This column indicates the minimum length of the PowerVent® system, in metres, that is necessary in order to prevent the fan from becoming defective.

**Caution** The minimum length is the real length in metres of concentric pipe. Here, the bends may NOT be included in the calculation (2 metres are 1 bend).

In case of a solution below the roof with wall or roof terminal, a concentric pipe of maximum 1 metre may be placed between the fan unit and the wall or roof terminal. Do NOT include this metre in the calculation when determining the minimum length of the concentric pipe.

#### 8.2.4 Maximum length

This column states the maximum length of the PowerVent® system. The maximum length is the real length in metres of pipe.

In case of a solution below the roof with wall or roof terminal, a concentric pipe of maximum 1 metre may be placed between the fan unit and the wall or roof terminal. DO include this metre in the calculation when determining the maximum length of the concentric pipe. The bend at the wall terminal (counts for 2 metres) is also included in the calculation.

The wall terminal, on the other hand, is NOT included.

#### 8.2.5 Length of condense trap

If flue gases have to be transported over a long distance, they may cool down to below dew point, and condensation may occur. The condensation generated must be discharged via a condense trap.

From a certain length, a condense trap will have to be placed. It concerns the real length in metres of pipe.

→ Use a condensation receptacle with stench-trap.



**Caution** If an odour trap is used, it should be filled with water at all times. It may not become dry.

A consequence of a dry odour trap could be that the appliance no longer switches on or that the discharge gases flow into the water discharge system. This means that a condense discharge should always be connected to a siphon filled with water. There are other possibilities as well. For instance, it is possible to use a liquid free odour trap. An example of this is the Hepworth HepvO, Hygienic self sealing waste valve.

- Caution**
- The condensation receptacle may not become dry.
  - A temperature of the exhaust gases that is too high could damage the condensation receptacle. That is why the condensation receptacle should be placed after a minimum length of the concentric system.

- ⇒ Consult table 3. Add 4 metres to the stated minimum length of the concentric system. The result is also the most ideal distance for placing the condensate receptacle.
- ⇒ Place the condensate receptacle in a horizontal section of the concentric pipe.
- ⇒ Provide a slope from the concentric pipe to the condensate receptacle.

- Caution** In some situations more than one condensate receptacles (see fig.10, C) should be placed. This is the case if the concentric pipe shows a downwards and then upwards slope AFTER the indicated minimum length (see fig. 10, B) and this pattern is repeated.

- Tip!** Advice the user not to let the pilot flame burn, in order to prevent condensation in the appliance.

The condensate receptacle is available at your dealer and can be supplied by DRU.

### 8.3 24 hour check

The PowerVent® control system consists of a 24 hour check. This means that every 24 hours the system has been live, it will switch off and switch on again. This has consequences for the appliance.

If PowerVent® is provided on an appliance with Mertik system, the main burner will momentarily switch off and switch on again, while the pilot flame continues to burn.

If it concerns an appliance with Honeywell system, the appliance will enter into malfunction and switch off. In order to prevent this, we recommend the following solutions.

Normal atmospheric use:

Remove the PowerVent® plug from the outlet and insert it again at a time when the appliance is never used (e.g. 7 am).

Appliance is used continuously (e.g. in hotel lobby):

Use the clock to switch off the appliance at a suitable moment, at the moment of the 24 hour check.

In thermostatic mode, the appliance is also used for functional heating:

Set the clock in the same way as described above.

## 9. Maintenance

Once a year the system should be checked, cleaned and, if necessary, repaired by a competent installer in the field of atmospheric gas-fired heating and electricity.

- Caution** When performing work at the installation, you must disconnect it from the power supply, by removing the 230V plug from the socket.

### 9.1 Parts

Parts that must be replaced, can be obtained from your supplier.

## 10. Malfunctions

In the following table you will find an overview of malfunctions that might occur, the possible causes and the remedies

**Table 1: diagnosis of malfunctions**

Problem	Possible cause	Remedy
A. fan is activated, but appliance does not ignite.	1. The (new) communication code between receiver and remote control must still be confirmed. 2. The odour traps of the condense trap are dry.	1. Confirm the code, as described in the Installation Manual of the appliance, chapter Malfunctions, in the table under solution A1. 2. Make sure there is sufficient water in the odour traps or use liquid free odour traps. (see chapter 8.2.5)
B. no pilot flame. (Mertik)	1. See the Installation Manual of the appliance, chapter Malfunctions, in the table under 'no pilot flame'.	1. See the Installation Manual of the appliance, chapter Malfunctions, in the table under 'no pilot flame'.
C. Pilot flame ignites, but main burner does not ignite. (Mertik)  Does spark, but does not ignite. (Honeywell)	1. Fan not connected or blocked.  2. Silicone hoses are not connected leak-tight.  3. Maximum length / max. number of bends of the Power-Vent® exceeded.  4. Flue gas discharge is not connected leak-tight.  5. Pressure gauge hoses have been connected the wrong way around.	1. Check whether the fan rotates after the appliance has been ignited. - If necessary, connect the ventilator; - If necessary, repair blockage  2. Check the connections. If necessary, connect the silicone hoses leak-tight.  3. Check length and number of bends. If necessary, correct to max. length / max. number of bends.  4. Check connections and silicone rings for leak-tightness. If necessary, connect them leak-tight.  5. Properly connect the hoses.
D. Appliance ignites, but after 30 minutes the flames are still a hazy blue (toxic).	1. Differential pressure incorrect.	1. Set the correct differential pressure; see appendix 2 with the technical specifications for the value.
E. The appliance always switches off and on at the same time, pilot flame continues to burn (Mertik), or the appliance switches off and enters into malfunction. (Honeywell)	1. The 24 hour check of the PowerVent® is being performed.	1. Set the time of the 24 hour check differently, as described in chapter 8.3.

## Appendix 1 Parts included with the delivery

In the following table you can find the parts that are supplied with the appliance.

**Table 2: Parts included with the delivery**

Part	Number
Installation manual	1x
Relay cable (Mertik or Honeywell)	1x
Fan unit	1x
Aluminium pressure gauge pipe	2x
Silicone pressure gauge pipe (hose)	2x
Bracket with control system (Mertik (RCE) or Honeywell (RCH)):	
- Control unit	1x
- Adjusting unit	1x
- Pressure sensor	1x
- Safety valve	1x
Straight adapter for safety valve	1x
Adapter	1x
Clamps	
Joints	
Screws	

## Appendix 2 Technical specifications

**Table 3: Technical specifications**

Type of appliance	Differential pressure (Pa)	Minimum length (metre)	Maximum length (metre)	Length condense trap (metre)
Apollo 80	100	7	36	> 18
Apollo 100	105	6	36	> 18
Centro 100	90	6	26	> 12
Excellence L	80	6	36	> 17
Excellence M	80	6	36	> 17
Excellence XT	80	6	36	> 17
Global 60 XT BF	50	6	36	> 16
Global 60 Corner BF	50	6	36	> 16
Global 60 Triple BF	50	6	36	> 16
Global 70 BF	55	7	36	> 17
Global 70 XT BF	65	8	36	> 18
Global 100 BF (< 2013)	95	8	36	> 16
Global 100 BF (> 2013)	55	7	36	> 17
Global 100 BF-03	70	5	42	> 12
Global 100 Triple BF	70	5	42	> 12
Global 100 Corner BF	70	5	42	> 12
Global 120 BF	70	5	42	> 12
Global 120 Triple BF	70	5	42	> 12
Global 120 Corner BF	70	5	42	> 12
Lugo 70	70	7	43	> 16
Lugo 80	70	7	43	> 16
Maestro 75 RCH	120	6	30	> 16
Maestro 80-2 RCH	110	6	43	> 19
Maestro 80-3 RCH	110	6	43	> 19
Metro 80 XT (tunnel)	65	4	64	> 18
Metro 100 XT 41 RCH (tunnel)	105	6	37	> 13
Metro 100 XT2 41 RCH	105	6	37	> 13
Metro 100 XT3 41 RCH	105	6	37	> 13
Metro 100 XTL 41 RCH	105	5	37	> 13
Metro 100 XTU 41 RCH	105	5	37	> 13
Metro 100 XT (tunnel)	75	6	56	> 18
Metro 100 XT2	90	5	36	> 17
Metro 100 XT3	90	5	36	> 17
Metro 100 XTL	80	4	36	> 18
Metro 130 XT 41 RCH (tunnel)	120	6	26	> 16
Metro 130 XT (tunnel)	105	5	36	> 20

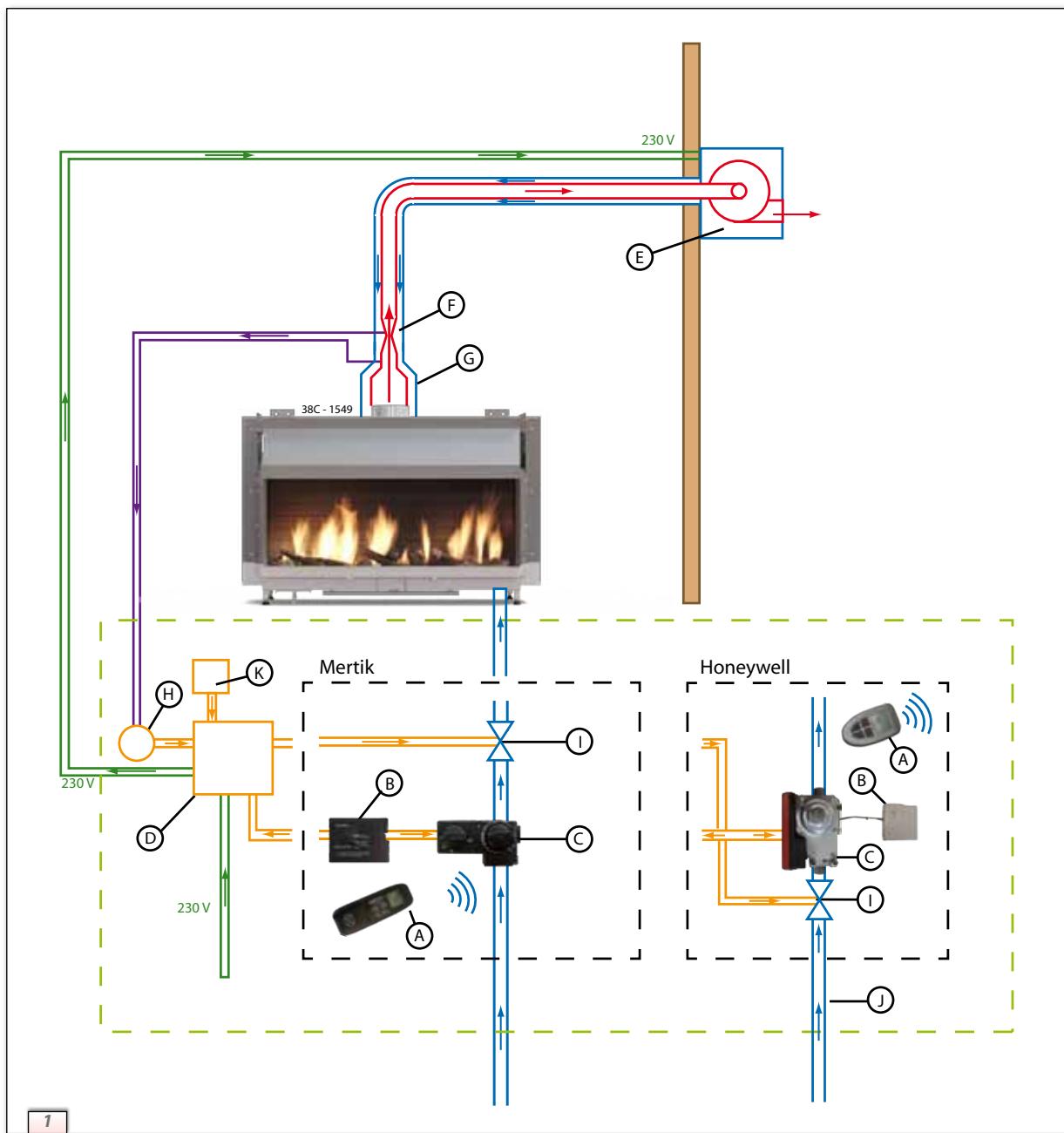
Bends (45° or 90°) are calculated as 2 metres, when determining the maximum length.

<b>Table 3: Technical specifications</b>				
Type of appliance	Differential pressure (Pa)	Minimum length (metre)	Maximum length (metre)	Length condense trap (metre)
Metro 130 XT 2	120	6	26	> 16
Metro 130 XT 3	120	6	26	> 16
Metro 130 XTL	120	6	26	> 16
Metro 150 XT 41 RCH (tunnel)	125	9	22	> 14
Metro 150 XT (tunnel)	125	9	22	> 14
Milo	100	7	36	> 18
Milo S	35	4	36	> 16
Prestige (tunnel)	55	3	68	> 18
Saxo 70 SL	55	6	36	> 19
Saxo 80 SL	95	8	36	> 20
Scenic 70 SL	55	6	36	> 19
Scenic 80 SL	95	8	36	> 20

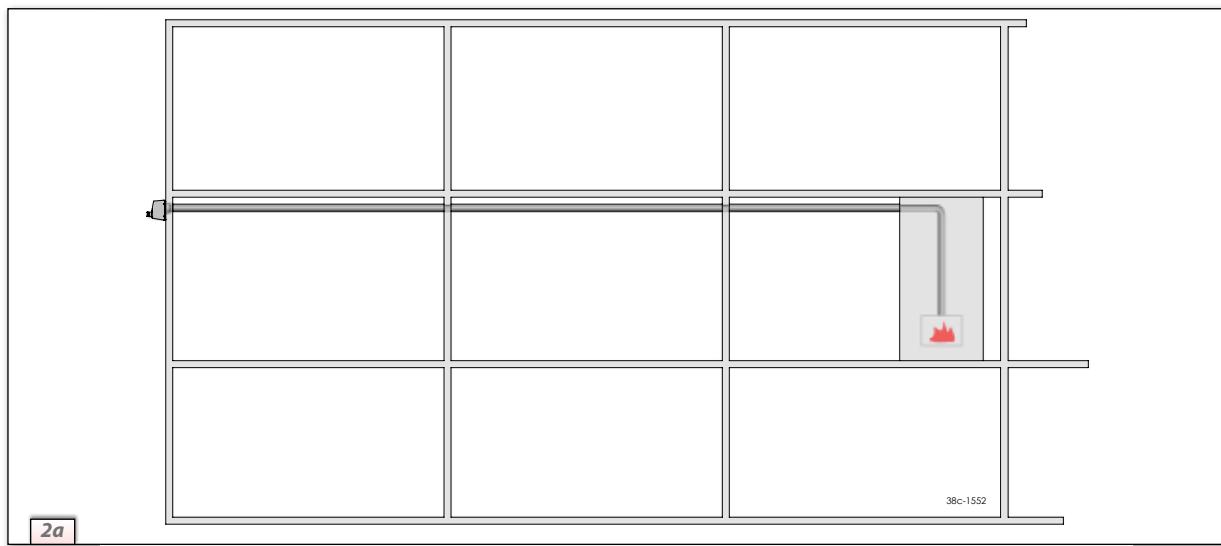
Bends (45° or 90°) are calculated as 2 metres, when determining the maximum length.

<b>Table 4: Technical specifications PowerVent®</b>			
	PowerVent Fan Wall/Roof terminal	PowerVent Honeywell	PowerVent Mertik
V (AC)	220-245	220-245	220-245
Hz	50-60	50-60	50-60
W	80	20	20
dB	68	-	-

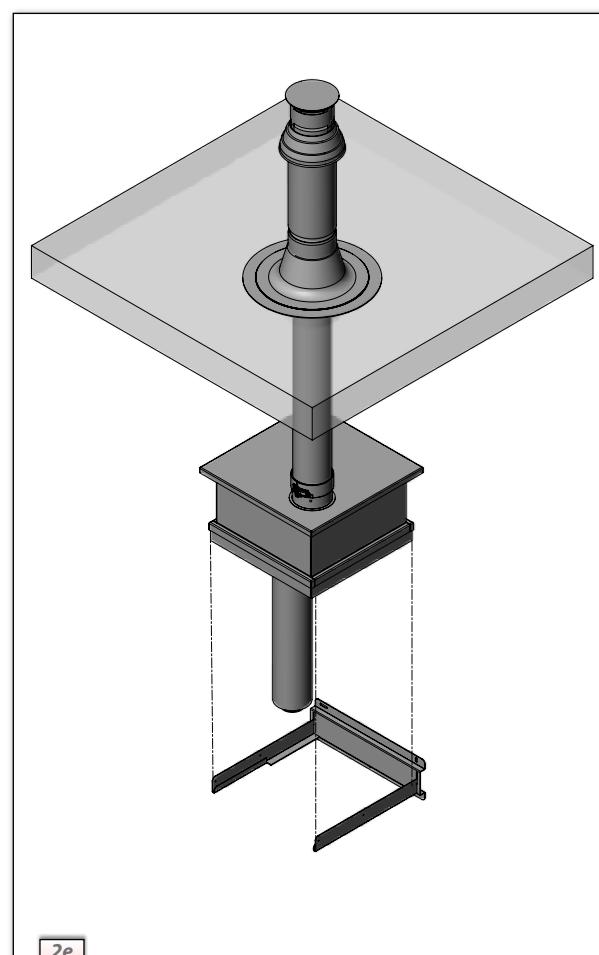
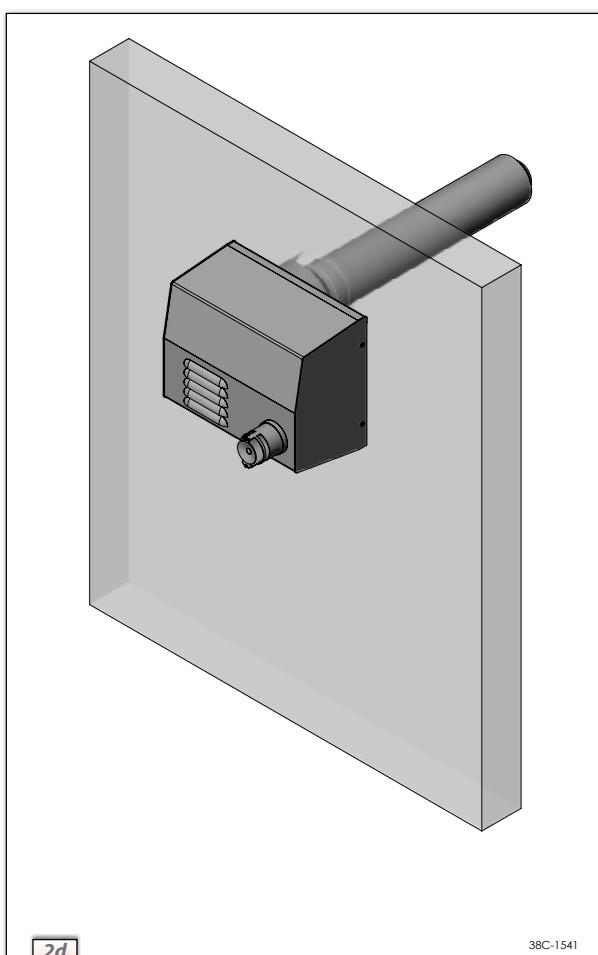
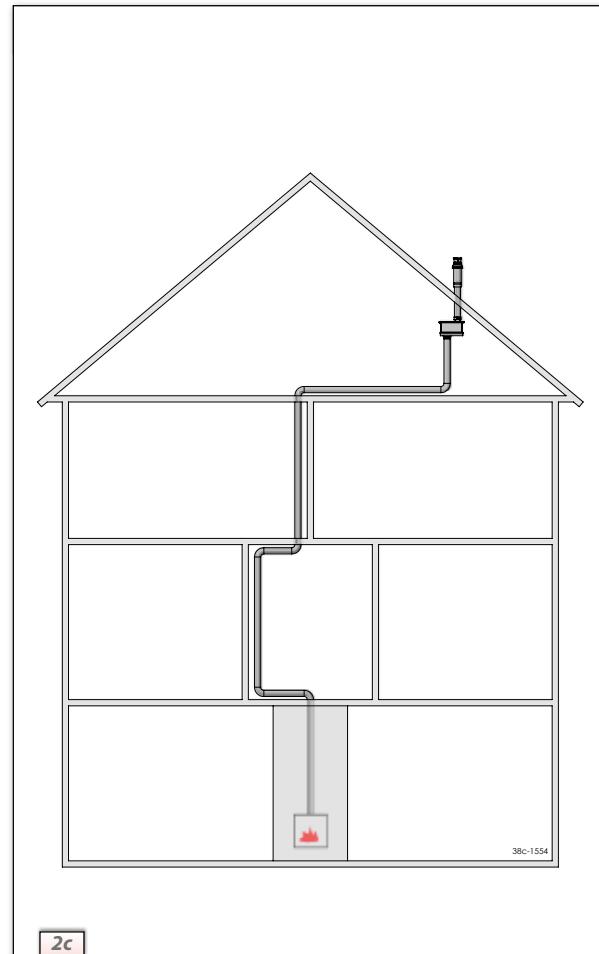
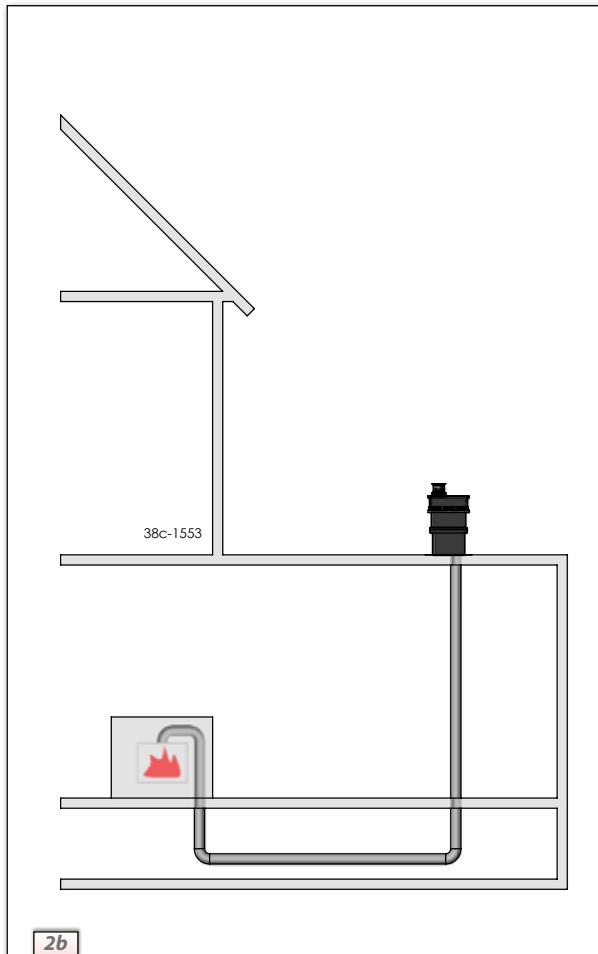
### Appendix 3 Figures

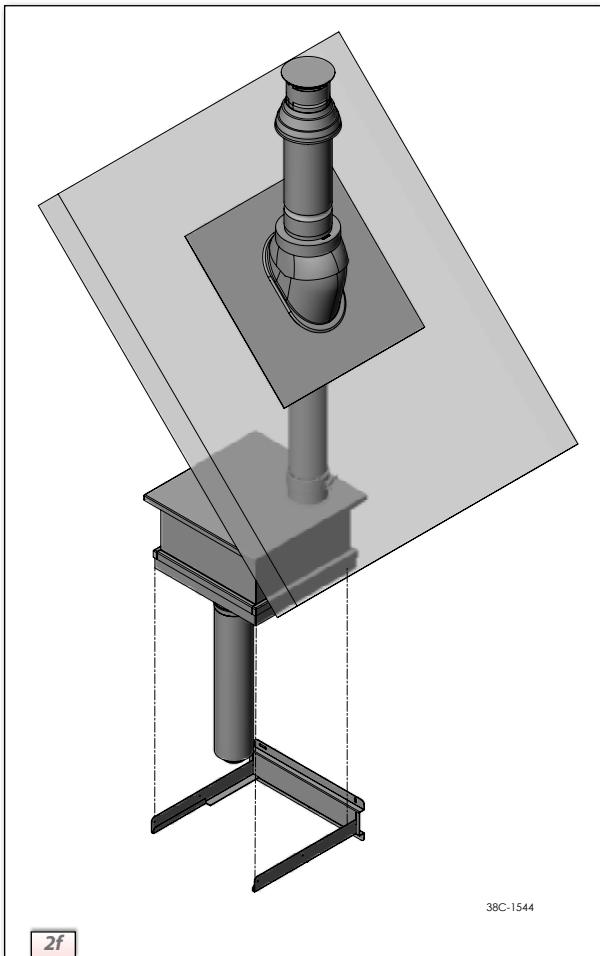


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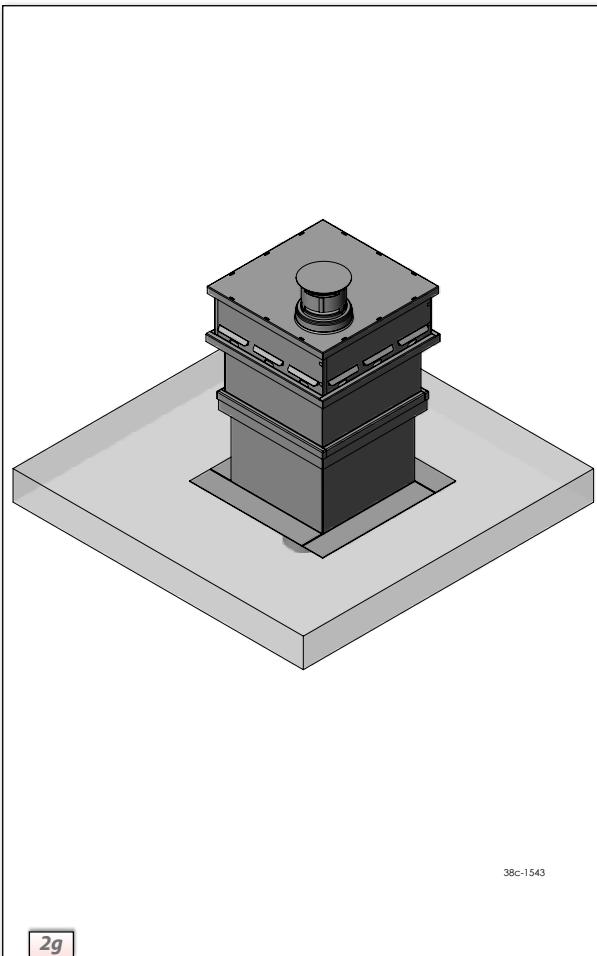


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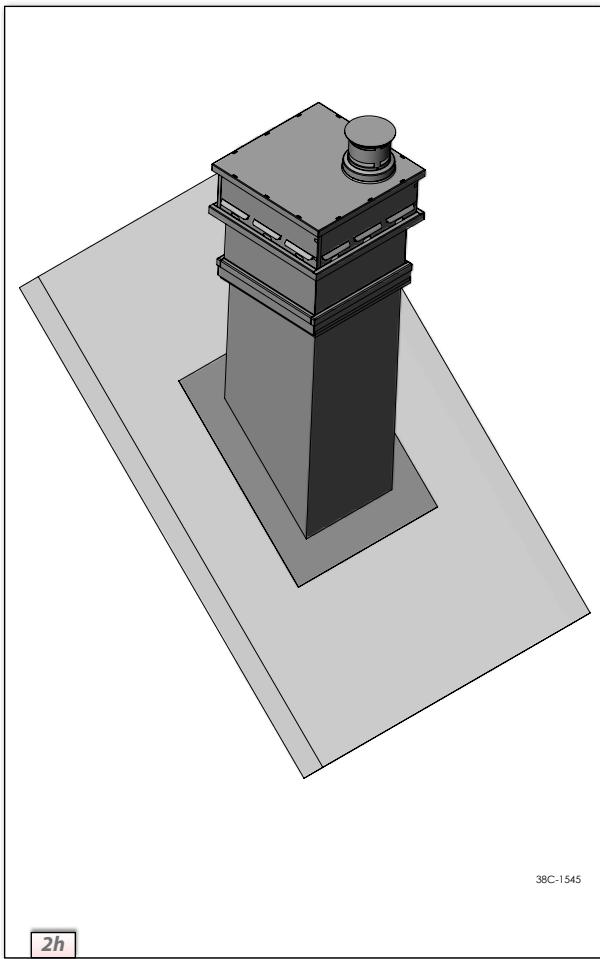




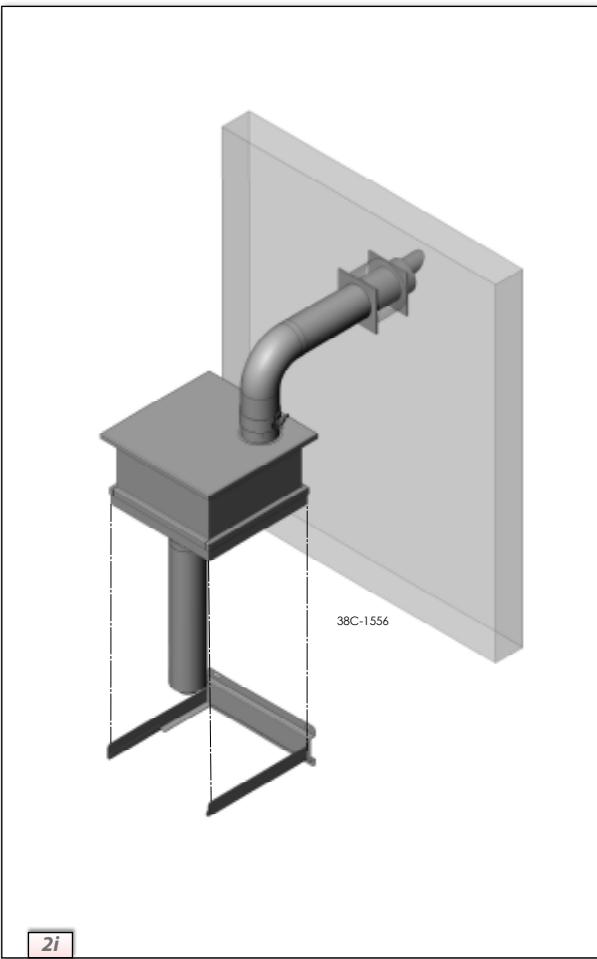
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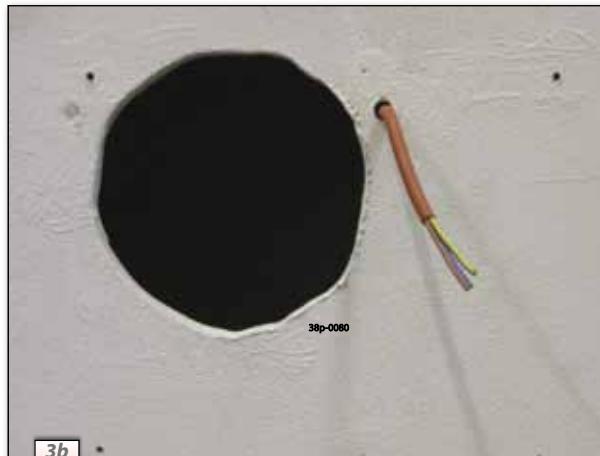
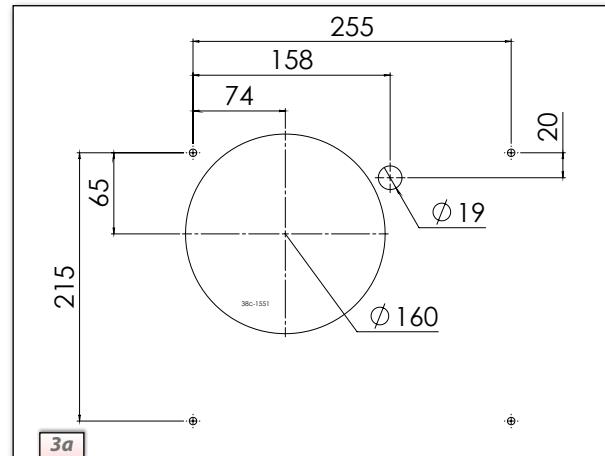
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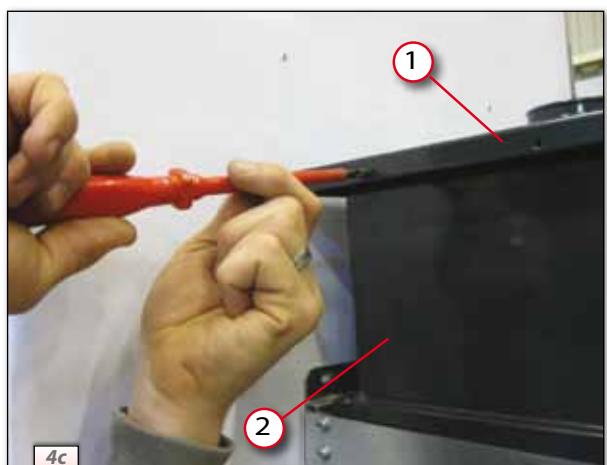
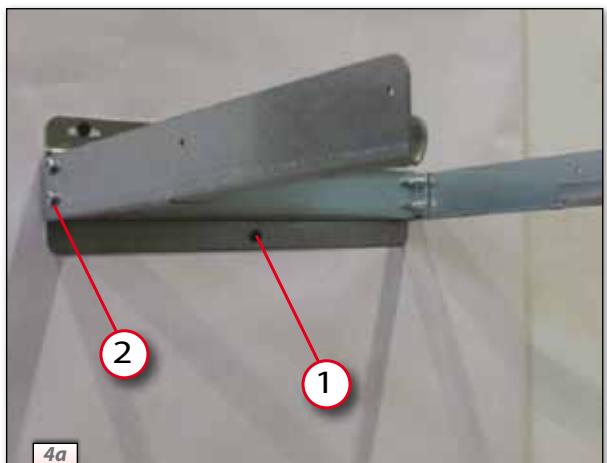


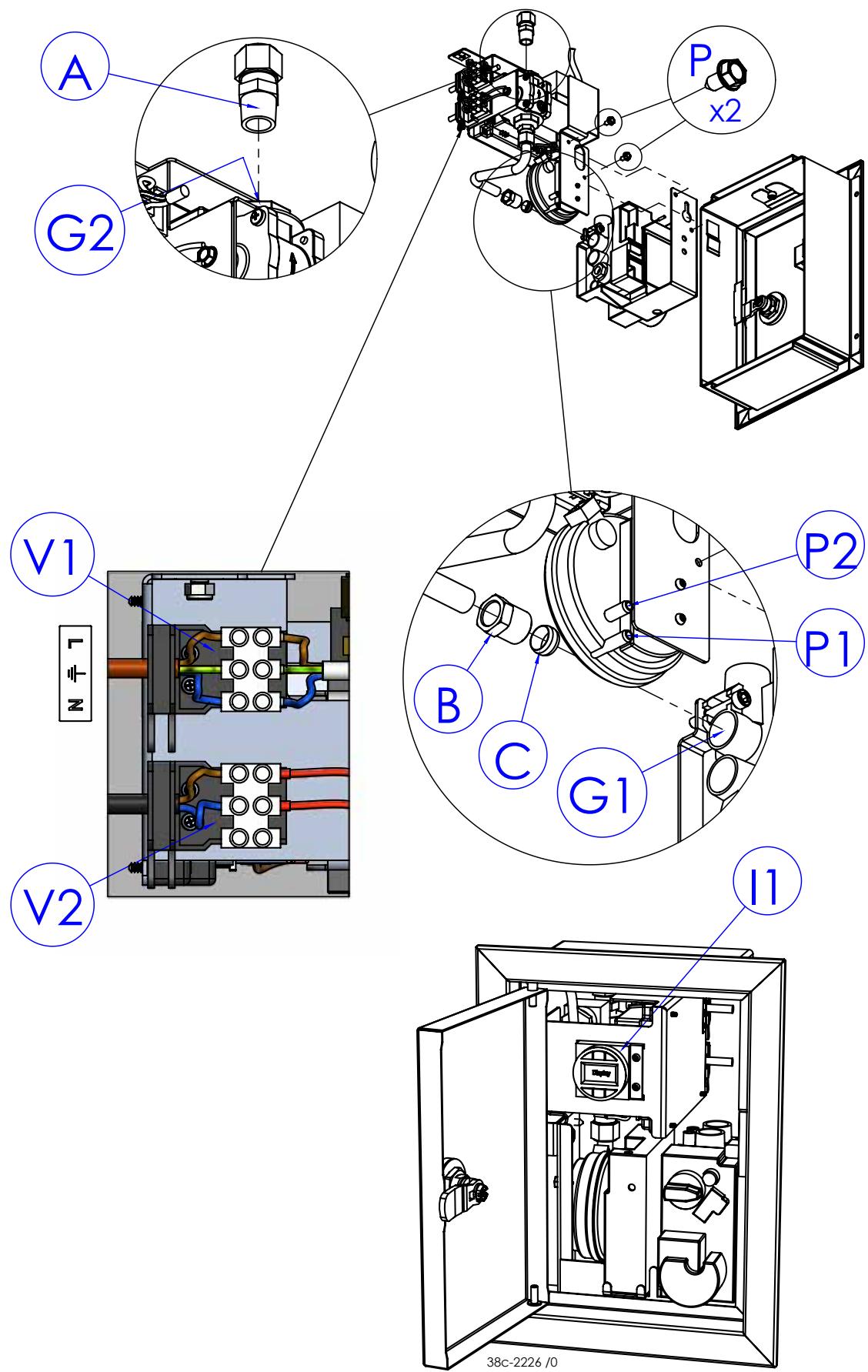
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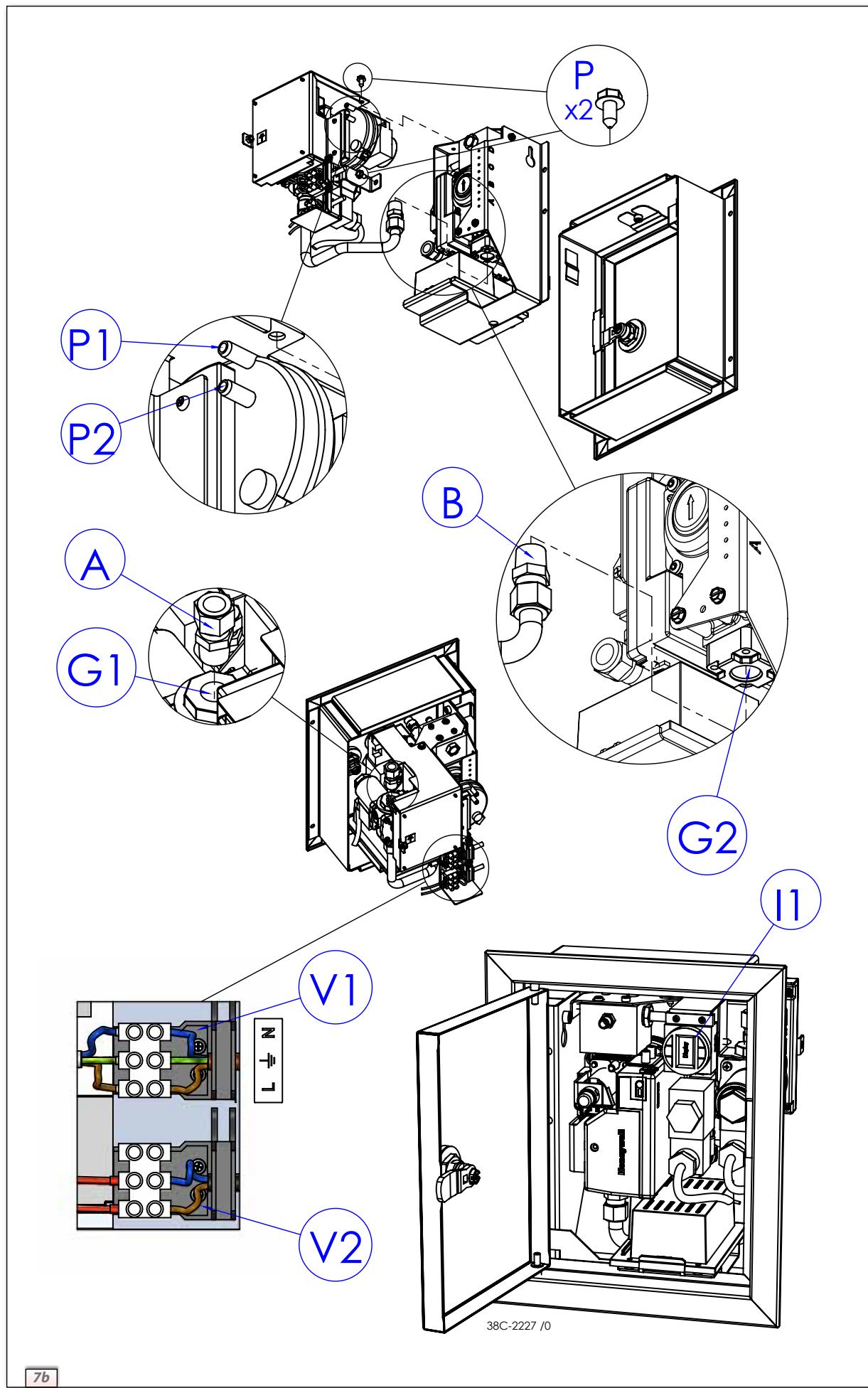


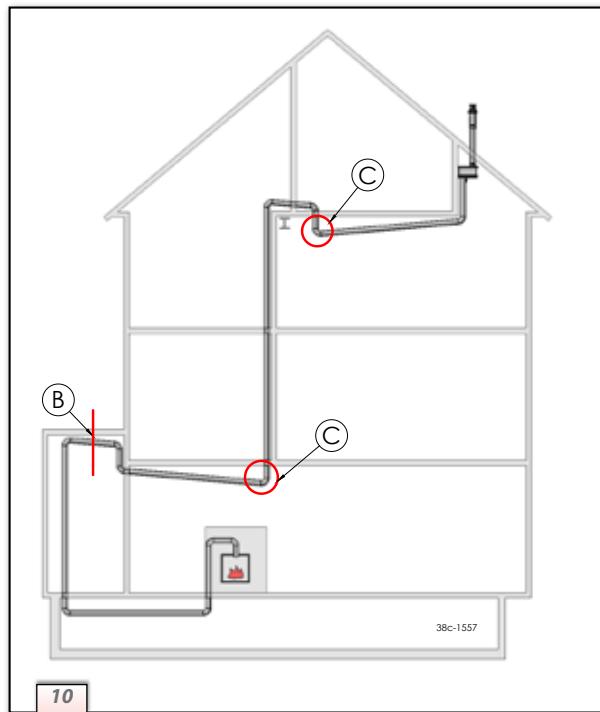
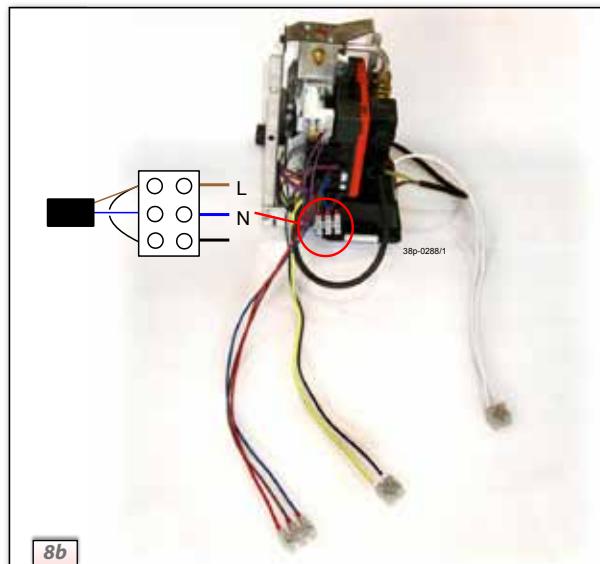
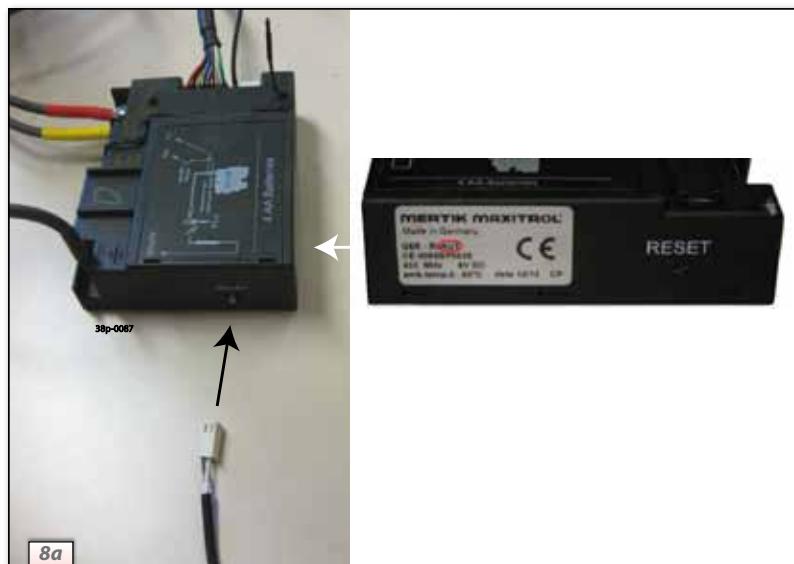
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## Notes

## Notes



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