



CARO GAS

INSTALLATION MANUAL (GB)

CARO 90 G
CARO 110 G
CARO 130 G

RAIS[®]

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INTRODUCTION TO THE INSTALLATION MANUAL

This gas fireplace must be installed according to this installation manual.

The installation manual covers the following three models:

CARO 90 G
CARO 110 G
CARO 130 G

The manual covers all the customiser options such as colour, glass/steel door, top/back flue or top plates.

GENERAL INFORMATION

It is important that the gas fireplace is correctly installed with consideration to the environment and people's safety.

The installation must comply with all local rules and regulations, including those that refer to national and European standards.

REQUIREMENTS

- Learn the structure and content of this manual before installation.
- Pay special attention to the safety chapter and the included manuals.
- Make sure you understand the instructions, otherwise please contact your RAIS dealer.
- Follow the manual completely and in the given structure.

INSTRUCTIONS FOR USING QR CODES

Several places within the manual, you will find QR codes with links to video guides for different installations.

For using the QR codes, simply open the camera on your phone and point it at the code. You will then get the option to open a link to the video guide.



CARO 90 G





CARO 110 G



CARO 130 G

WARNINGS

Please note the symbols below that indicate potentially dangerous situations.

SYMBOL	DESCRIPTION
	Visual sign illustrating an important notice or caution.
	Visual sign illustrating a potential hazard.

PRODUCTION NUMBER

The production number is the gas fireplace's identification number and must be used when making any enquiries relating to the fireplace's warranty.

Find the gas fireplace's production number on the bottom rear of the fireplace and write it down in the text box:

Production number

Note: See the drawing for the location of the production number.

Date:

Dealer:



Production number :
00000
Produced by:
RAIS A/S
9900 Frederikshavn, DK

Example of
production number

THE GAS FIREPLACE IN GENERAL

This RAIS product is a highly efficient gas fireplace with a sealed combustion chamber for a balanced flue system. The fireplace has variable heating power and is fitted with a burner developed using the latest burner technology.

RAIS gas fireplaces are certified for indoor use, complying with European Standard EN 613. They can be used with ventilation systems and are tested for leak resistance at up to -50 Pa negative pressure. No additional negative pressure monitoring unit or window tilt switch is needed, and there are no specific size or ventilation requirements for the installation room.

BEFORE INSTALLATION

All local regulations and provisions must be studied before installation. Always check the national building and gas regulations.

In addition, it should be confirmed that the description on the information label relating to gas type and gas

pressure is in accordance with the local regulations. The gas supply should be examined to ensure that it can supply the required amount of gas and the required pressure.

It is recommended that gloves are worn when installing the gas fireplace to avoid fingerprints on the glass, etc.

GAS CONNECTION

This gas fireplace may only be installed, adjusted, and serviced by an authorised installer. The installation must comply with local and national building and gas regulations, and the instructions in the installation manual must be followed.

KEEP THE MANUALS

The installation manual and user manual are stored by the customer for clarification during use and for, e.g. servicing.

WARNING!

If you smell gas, immediately switch off the gas supply. Turn off the fireplace at the stopcock and main electrical switch.

Ventilate the room by opening windows and doors. Do not use electrical appliances or switches in the vicinity of the fireplace. The gas supply may not be reconnected until an authorised installer has examined the fireplace and approved it.

NOTE!

The installed gas regulator must allow for the inlet pressure given on the information label. An authorised installer must size the pipe to ensure the correct gas pressure and flow rate.

INFORMATION LABEL

All RAIS gas fireplaces have an information label which states the fireplace's gas type, gas pressure, power, etc.

The information label is located with the manuals on delivery. Position the information label with the GV60 Combination Valve and receiver for easy access so that the authorised installer can check the information.

The information label must be used during installation for setting and checking gas pressure.

There is a larger version of the information label on page 48.

23		CE		2575-24		UK		0359-24		C11	
Product ID: 2575DM2541											
Produced at: RAIS A/S, Industrivej 20, 8900 Frederikshavn, Denmark											
<input type="checkbox"/> Care 90 Gas <input type="checkbox"/> Care 130 Gas <input type="checkbox"/> Care 110 Gas											
This appliance must be installed in accordance with the rules in force, and only used in a sufficiently ventilated space. Consult instructions before installation and use of this appliance. Tested and Certified for use on Biogas (Efficiency class 1).											
Serial number										Burner ID	
Gas category and supply pressure	Input (kW)	Output (kW)	Net Output (kW)	Max. heat input (kW)	Max. interval (h)	Min. interval (h)	Country of destination				
<input type="checkbox"/> NATURAL GAS DEE DEEL DEE+ DEE-	620 @ 20 mbar	8.1	6.3	1.7	13.8 Interval 15.4 - 16.2	7 Interval 6.3 - 7.2	AT, CH, CZ, DE, DK, EE, ES, FI, GB, GR, HR, IE, IT, LU, UK, NO, PL, PT, RO, SE, SI, SK, TR				
	625 @ 20 mbar	6.8	4.9	1.7	13.0 Interval 13.5 - 15.3	7 Interval 6.3 - 7.2	DE				
	620 @ 20 mbar	8.1	6.3	1.7	13.8 Interval 15.4 - 16.2	7 Interval 6.3 - 7.2	BE, FR				
	625 @ 20 mbar	7.0	5.0	1.7	11.5 Interval 13.5 - 16.5	7 Interval 6.3 - 7.2	BE, FR				
	625.3 @ 25 mbar	7.7	5.8	1.7	11.5 Interval 13.5 - 16.5	7 Interval 6.3 - 7.2	NL				
	61501 @ 8 mbar	8.5	6.7	1.6	8 Interval 8.4 - 8.5	2 Interval 2 - 2.3	DK, SE				
<input type="checkbox"/> TOWN GAS EP+ (25-30/27) EP- (25-30/27)	630 @ 20-30 mbar	7.2	5.7	1.8	29 Interval 26.3 - 31.9	15 Interval 13.5 - 16.5	BE, CH, CY, CZ, ES, FR, GB, GR, HR, HU, IT, LU, PL, PT, RO, SK, TR				
	631 @ 37 mbar	7.2	5.7	1.8	30 Interval 27 - 33	15 Interval 13.5 - 16.5	BE, CH, CY, CZ, ES, FR, GB, GR, HR, HU, IT, LU, PL, PT, RO, SK, TR				
<input type="checkbox"/> LPG EP (25) EP (27) EP (30) EP (30)	631 @ 30 mbar	6.3	5	1.7	29 Interval 26.3 - 31.9	15 Interval 13.5 - 16.5	FI, NL, RO				
	631 @ 37 mbar	7.2	5.7	1.8	30 Interval 27 - 33	15 Interval 13.5 - 16.5	BE, CH, CZ, ES, FR, GB, GR, HR, HU, IT, LU, PL, PT, RO, SK, TR				
	631 @ 60 mbar	7.2	5.7	1.8	30 Interval 27 - 33	15 Interval 13.5 - 16.5	AT, CH, CZ, DE, NL, SK				
	620 @ 30 mbar	7.2	5.7	1.8	29 Interval 26.3 - 31.9	15 Interval 13.5 - 16.5	BE, BG, CY, DK, EE, FI, FR, GB, GR, HR, HU, IT, LU, MT, NL, NO, RO, SE, SI, SK, TR				
<input type="checkbox"/> Biogas EP (25) EP (30)	631 @ 30 mbar	6.3	5	1.7	29 Interval 26.3 - 31.9	15 Interval 13.5 - 16.5	BE, BG, CY, DK, EE, FI, FR, GB, GR, HR, HU, IT, LU, MT, NL, NO, RO, SE, SI, SK, TR				
	630 @ 30 mbar	7.2	5.7	1.8	30 Interval 27 - 33	15 Interval 13.5 - 16.5	AT, CH, CZ, DE, FR, SK				

SAFETY

It is important that the gas fireplace is correctly installed with consideration to the environment and people's safety. No unauthorised alterations may be made to the fireplace.

The fireplace may not be used if the glass is split, cracked, or removed. Do not use the fireplace if the glass gasket is broken or worn.

Flue systems that are CE approved for this product may be used (see the balanced flue manual on page 33).

It is recommended that the air replacement in the room is adjusted to ensure a pleasant indoor environment.

This fireplace can be installed in an airtight building or in a building with mechanical ventilation since the gas fireplace functions in a closed system that does not extract combustion air from the room.

Please be aware that not following the instructions in this manual and the provided manuals can lead to a dangerous or fatal situation.



WARNING!

- The appliance must be positioned and connected as a room sealed system appliance by an authorised installer.
- Before beginning the installation, check that the details on the information label correspond to the gas type and supply pressure to which the appliance will be connected.
- Install the appliance in accordance with the following instructions, and the national and local applicable regulations.
- Do not put flammable or organic material in the fireplace.
- After the fireplace has been shut down, the fireplace needs to cool for 15 minutes before the glass can be cleaned.
- Make sure that the area around the fireplace is always free of flammable materials. See minimal safe distance from page 35.
- Make sure that the fireplace stays clean from, e.g. dust and moisture during the installation. Blockage of the delayed ignition flaps can lead to a dangerous situation.
- Make sure that the delayed ignition flaps are functional during installation (see page 37).
- Make sure that the balanced flue is correctly installed.
- Do not twist or force the flexible pipes to the GV60 combination valve. Make sure there is no stress on the pipes.
- Make sure not to damage the pipes during installation or placement of the fireplace.
- After installation, make sure that the pipes, and compressions fittings are gas tight.

SAFETY DEVICES IN THE FIREPLACE

The gas fireplace has three safety devices:

- **1st thermocouple**

Our fireplaces are fitted with a 1st thermocouple in the pilot unit. If the pilot flame is not lit, the fireplace will shut down.

Make sure not to place any decorations around the thermocouples.

- **2nd thermocouple**

Our fireplaces are fitted with an extra 2nd thermocouple that shuts off the fireplace if the main burner is not lit or is not burning correctly.

Make sure not to place any decorations around the 2nd thermocouple.

- **Delayed ignition flaps**

Our fireplaces are fitted with overpressure doors called delayed ignition flaps. If a hard ignition should occur, the delayed ignition flaps will take the pressure so that the glass is not damaged.

WARNING!

Only use the items that are supplied or described in this manual or other related documents.



NOTE!

Due to the risk of fire, be aware of the distance to flammable items, e.g. furniture. See the distance on page 35.

This product is a heating appliance. This means that surfaces become very hot and must not be touched when the fireplace is in use or has just been switched off. It is therefore necessary to protect children, seniors and persons with limited mobility from the fireplace.

If the fireplace is switched off or the fire goes out, wait at least three minutes before igniting it again.

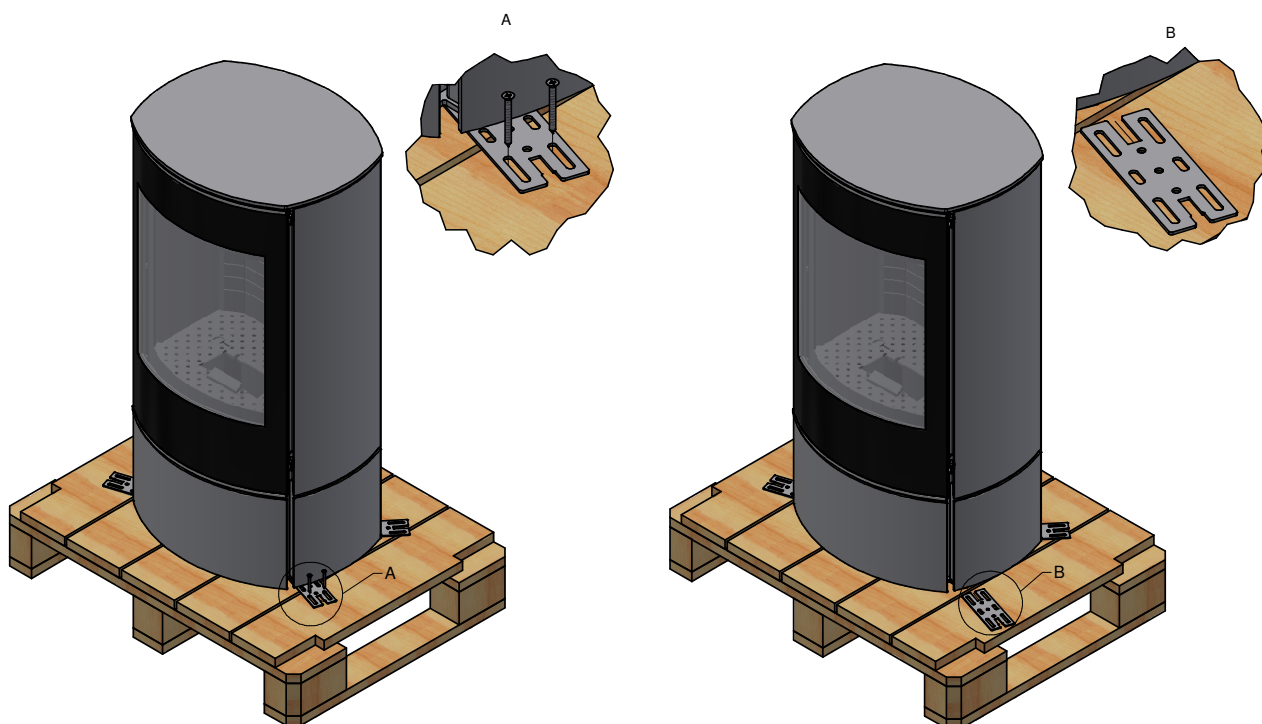


DELIVERY PACKAGING

The fireplace is supplied secured to a transport pallet using four transport safety fittings – one in each corner (A). The safety fittings are secured using screws and these must be removed. The safety fitting can then be removed (B).

When the fireplace is delivered, please check it for any defects or damage.

The fireplace may not be installed if there is any damage, missing parts, or defects.

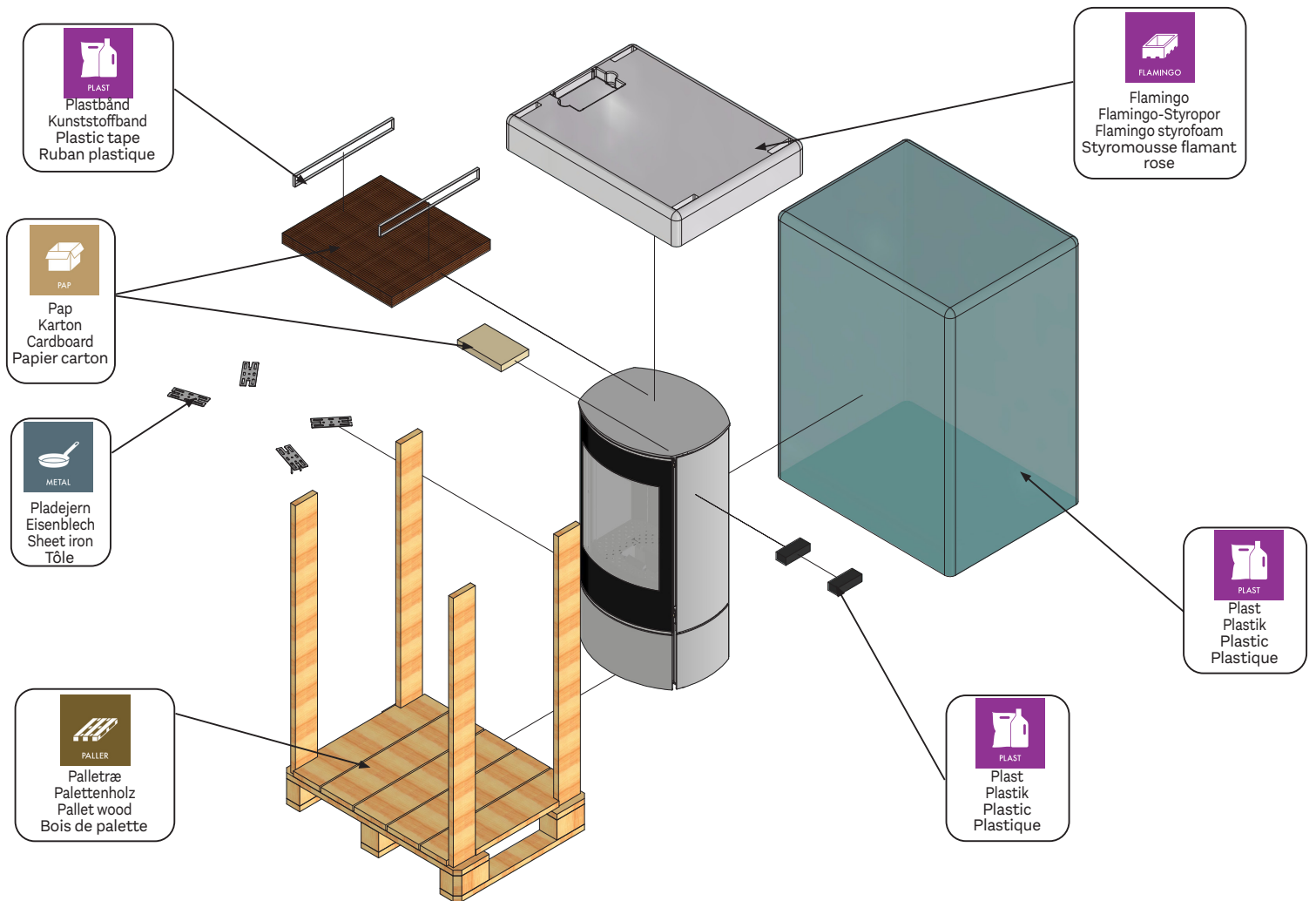


DISPOSAL GUIDE

DISPOSAL OF PACKAGING

The fireplace is shipped in packaging that can be recycled. This packaging must be disposed of in accordance with national regulations relating to the disposal of waste.

Here's an overview of the materials:



OVERVIEW OF CONTENT

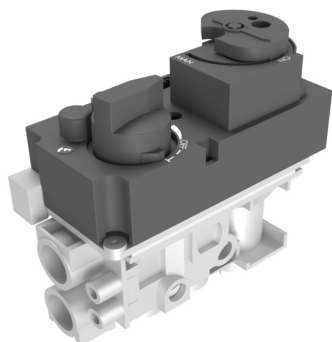
The following elements are included for decoration of the combustion chamber and fine tuning of airflow and flame image:



CONTENTS

- 1. Logs (qty. 8)
- 2. Filaments (1 bag)
- 3. Secondary burners (qty. 2)
- 4. Restrictors (qty. 2)
- 5. Ember layer: (2 bags)
- 6. Door key (qty. 1)

OVERVIEW OF ELECTRONIC COMPONENTS



GV60 combination valve



Receiver



Power supply and adapter 6V (optional)

OVERVIEW OF REMOTE OPTIONS



Remote control



PUCK (optional)



WiFi module (optional)

INSTALLATION GUIDE

Below is an overview of the following pages regarding installing the Caro 90 G, Caro 110 G and Caro 130 G.

INSTALLATION PREPARATIONS

Follow the recommended instructions on page 14 before starting to install the gas fireplace.

OPENING THE DOOR

Follow the instructions on page 15 to learn how the door is opened.

LOCKING THE DOOR

Follow the instructions on page 16 to learn how the door is locked.

INSTALLING THE BURNER

Follow the instructions on page 17 to install the burner.

INSTALLING OPTIONAL SOLUTIONS

Please follow the separate user manual for installing optional solutions.

ARRANGING THE CERAMIC LOGS

Follow the instructions on page 21 to arrange the ceramic logs

CHANGING FLUE CONNECTION

Follow the instructions on page 26 to change from top outlet to rear outlet.

RESTRICTORS

Follow the instructions on page 28 for the overview and description.

INSTALLATION OF ELECTRICAL AND GAS COMPONENTS

Follow the instructions from page 29 for installing electrical and gas components – including a guide for synchronising the remote control and receiver.

BALANCED FLUE SYSTEM

Read an introduction to the balanced flue system on page 33. For a more detailed description and installation, please follow the separate installation manual for the balanced flue system.

DISTANCE TO COMBUSTIBLE

Follow the instructions from page 35 for placement requirements and distance from combustible material.

STARTING THE GAS FIREPLACE

Follow the instructions on page 37 when igniting the fireplace for the first time.

PURGING THE GAS PIPE

Follow the instructions on page 38 for a functional test to check the function for starting the gas fireplace.

PRESSURE SETTING ADJUSTMENT

Follow the instructions on page 39 for a pressure test.

CO AND O₂ MEASUREMENT

Follow the instructions on page 40.

INSTALLATION PREPARATIONS

On this page, we have listed points to be aware of before starting the installation of the gas fireplace.



NOTE!

Placement and installation preparations

- Install the fireplace on a solid floor that can hold the weight of the fireplace.
- Comply to the fireproof distances stated in this manual. See the exact distances on page 35.
- When the fireplace has been placed, make sure it is level and straight.
- The glass on the fireplace needs to be cleaned before using it the first time, otherwise fingerprints, etc., can burn on to the glass.

Preparations for electrical and gas supply

- The gas supply and electrical supply should be located near the bottom of the fire, make sure to plan the process before installation. We recommend installing the gas supply with a flexible approved system for the last 500 mm of the installation for easy connection to the fireplace.
- Make sure to calculate the right diameter for the gas supply for correct function of the fireplace.

OPENING THE DOOR

The gas fireplace comes with the door locked. The door must be opened to install the fireplace burner.

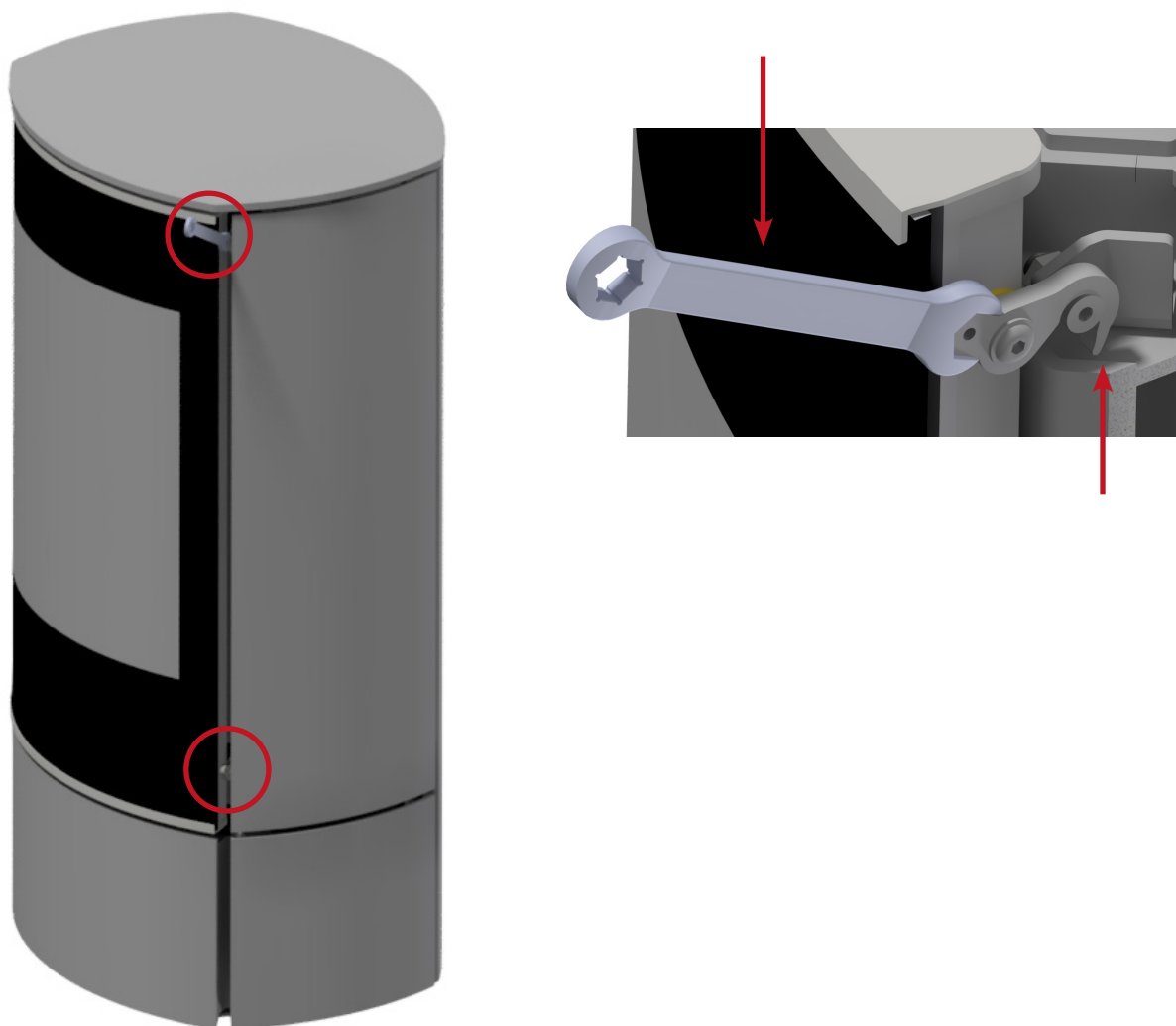
NOTE!

The door key is made from metal and requires careful handling to prevent scratches on the fireplace paint.



The fireplace comes with a unique door key that is essential for opening and accessing the fireplace.

The door is fitted with both upper and lower locks. To unlock the door, simply insert the key into the respective lock and press down firmly. This will give you access to the fireplace.



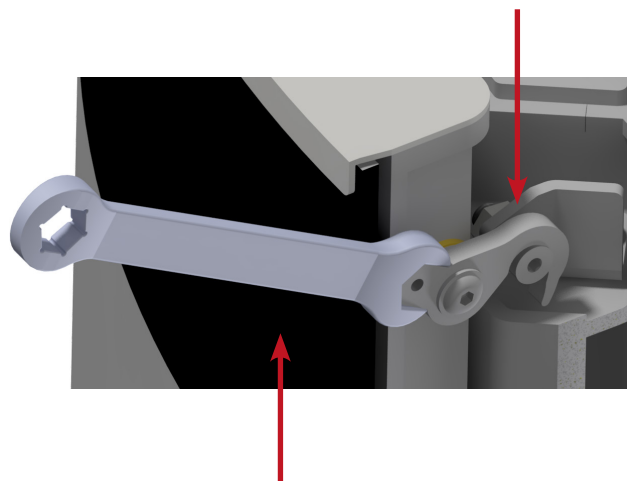
LOCKING THE DOOR

To securely lock the door to the burning chamber, firmly hold the door in place and use the provided door key to engage both the upper and lower locks.

Ensure that the key is pushed upwards to engage the locks fully. Before starting the fire, make certain that the burning chamber is completely sealed to ensure safety and optimal performance.

NOTE!

Please ensure that both the top and bottom locks securely grip the door and create a tight seal on the burning chamber.



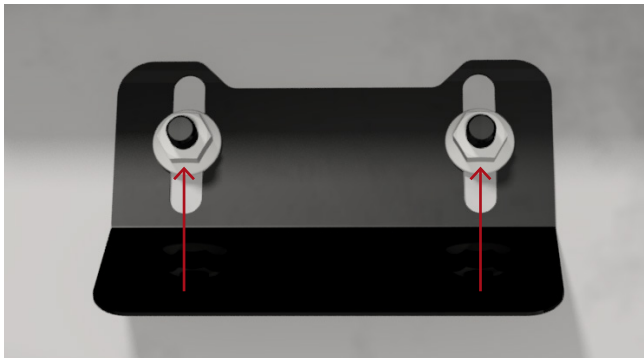
INSTALLING THE BURNER

Follow these steps for potential replacement of a burner or adjustment of air settings.

Make sure that the burner fits the required gas type. The gas type for the burner is described on the side of the box which it arrives in. Check that the injectors correspond to gas type and that the air settings are correct.

AIR SETTINGS FOR NATURAL GAS

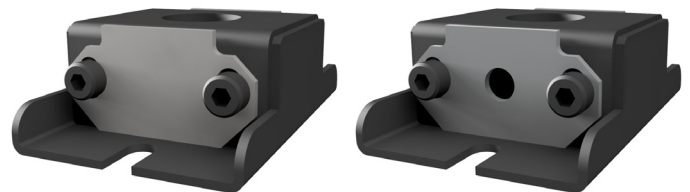
The airplate for the main burner needs to be set on half (see the arrow).



The air settings for the burners varies between the gas types. Make sure that the correct air settings have been made, if not, please make the necessary adjustments.

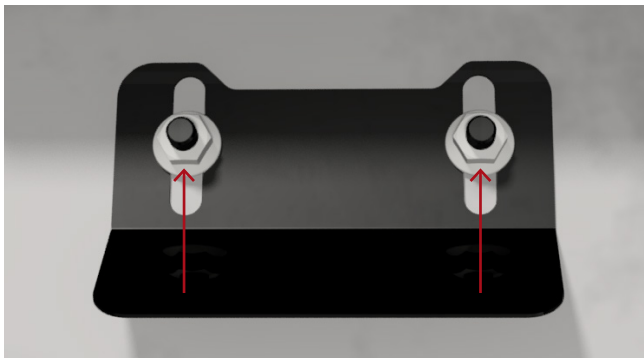
Follow the guide below for air setting Natural gas or LPG.

For Natural Gas, the air on the venturis should be adjusted to one solid plate and one plate with a small hole.

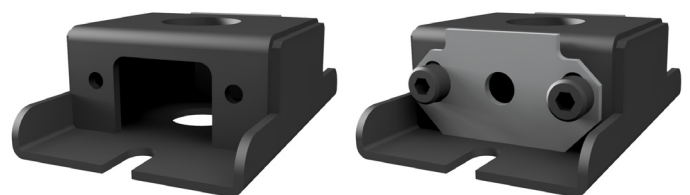


AIR SETTINGS FOR NATURAL GAS & SNORKEL FLUE

The airplate for the main burner needs to be set on half (see the arrow).

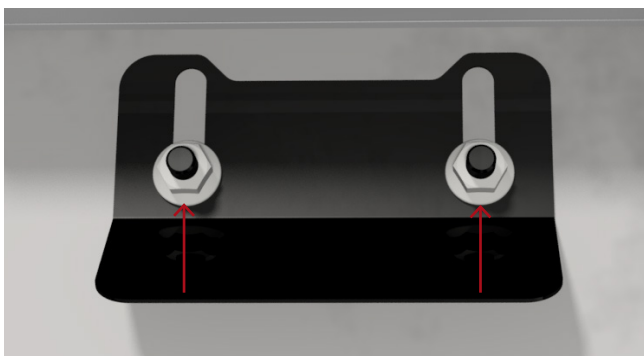


For Natural Gas, the air on the venturis should be adjusted to only have one plate installed with a small hole, the otherside should be completely open.

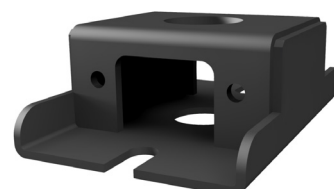


AIR SETTINGS FOR LPG

The airplate for the main burner needs to be set on fully open (see the arrows).



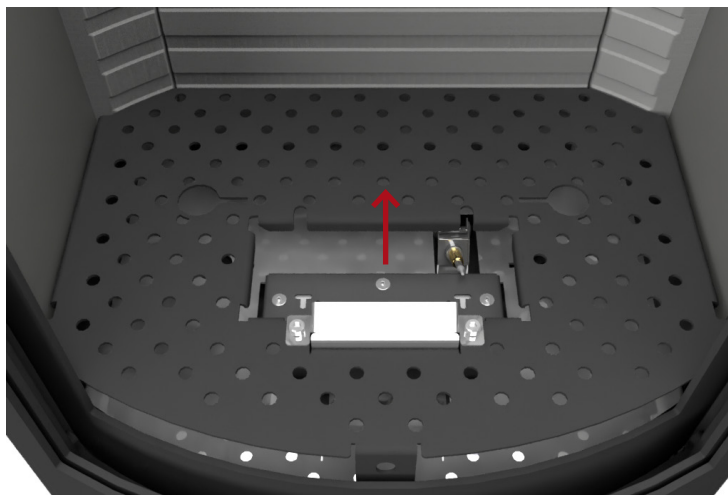
For LPG, the air on the venturis should be adjusted to be completely open on both sides.



PROCEDURE FOR INSTALLING THE BURNER

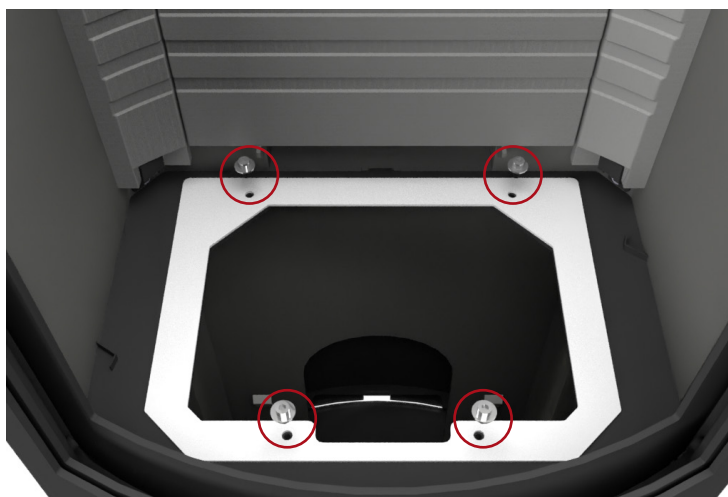
1. Remove the bottom grill, exercise caution to avoid damaging the fireplace's paint.

Handle the process delicately and use gentle movements to prevent any damage to the paintwork.



2. At the bottom, you will notice four bolts essential for fixing the burner to the fireplace.

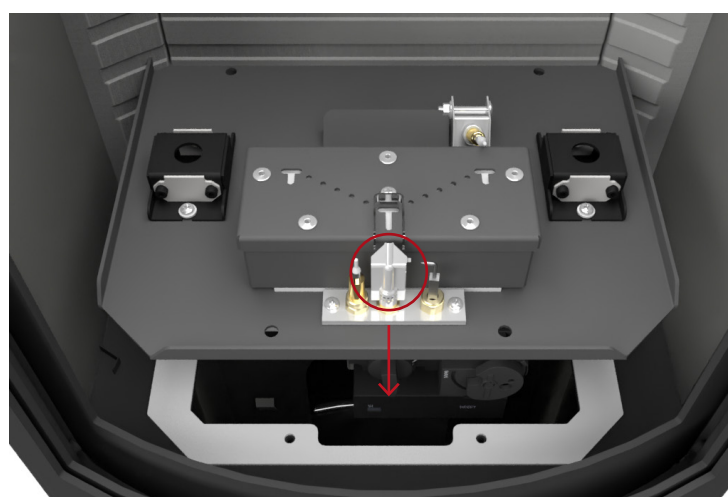
Carefully remove these bolts and remember to store them safely for future use.



3. Unpack your burner. Take your time to carefully lower it into the hole in the burning chamber.

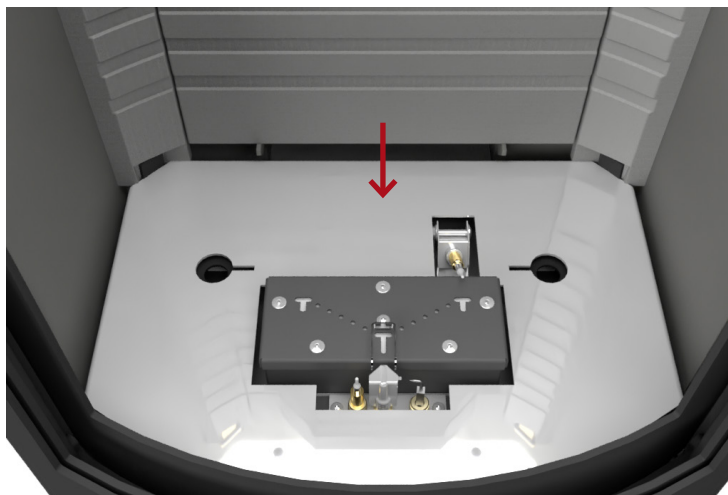
4. Exercise caution to avoid damaging the white gasket positioned at the bottom of the fireplace. You may need to gently tilt the burner to help it fit into the hole properly.

Ensure that the pilot unit is positioned in front of the fireplace, while the two secondary burners are placed at the back.



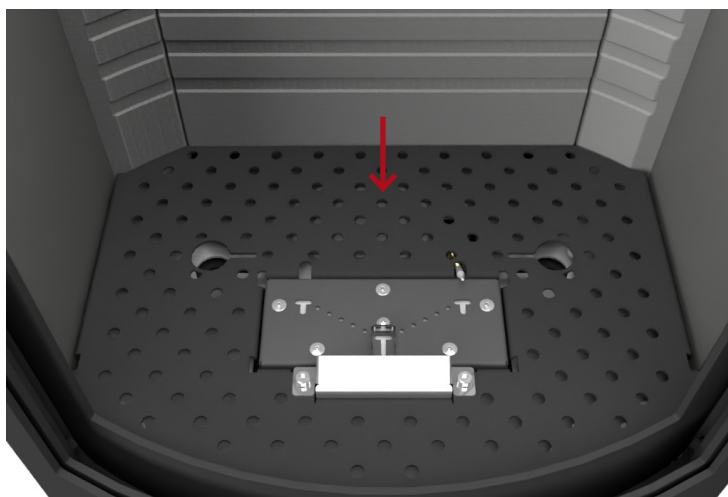
5. After installing the burner, securely position the heat shield above it.

This essential step will provide vital protection to the sensitive electronics located underneath, ensuring their safety and proper functioning.



6. After placing the heat shield above the burner and ensuring the electronics are well-protected, carefully reinstall the black bottom grill on top.

This step guarantees that the burner and heat shield are securely enclosed, maintaining a tidy and safe setup for your fireplace and ensuring the correct airflow for the combustion.

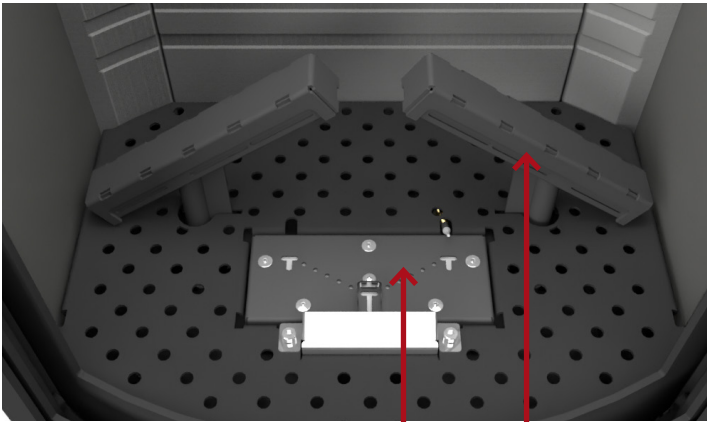


WARNING!

Incorrect installation can cause a dangerous situation. Make sure that the bottom bolts are tightened and that the burner is pressed against the bottom combustion chamber gasket.

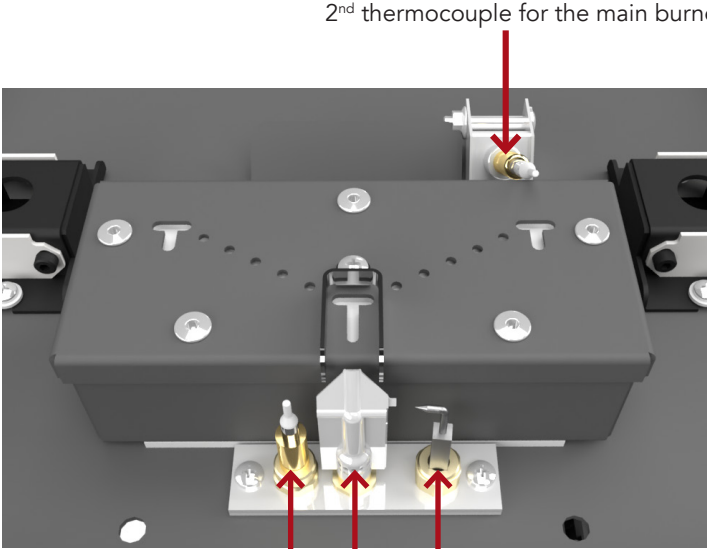
OVERVIEW OF THE BURNERS

GB



Main burner

Secondary burner



2nd thermocouple for the main burner

1st thermocouple

Piezo electrode

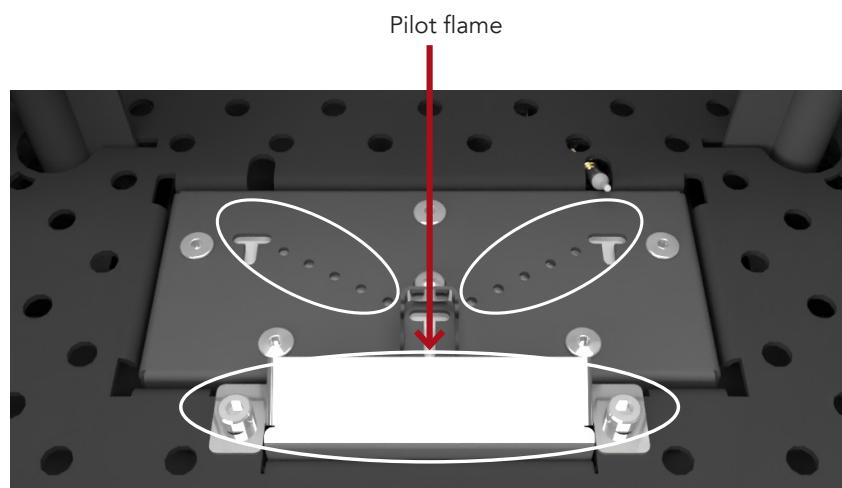
Pilot flame guide

ARRANGING THE CERAMIC LOGS

When arranging the logs and the embers layer in the combustion chamber, it is important that they do not cover the pilot flame and its thermocouple, and ember material must not be placed under the pilot guard.

Both thermocouples must be kept free of the embers layer. Do not cover the holes in the main burner (see the circles).

When commissioning or servicing the fireplace, it must be ensured that the cross ignition (from the pilot flame to the main burner) functions, and that ignition occurs easily with the secondary burners.



WARNING!

It is very important that you follow this manual when positioning the logs and the embers layer in the fireplace. Failure to carry this out correctly will result in a flame profile that is less than optimal. Incorrect placement of the logs can lead to a dangerous situation.



LOG PLACEMENT – CARO 90, CARO 110 AND CARO 130

The following ceramic logs must be used.

GB



1. Place log no. 1 as shown in the image.

2. Place the left secondary burner.



3. Place log no. 2 on the left burner.



4. Place ceramic log no. 3 on the other secondary burner before placing it in the burning chamber.



5. Then place the secondary burner and ceramic log.



6. Place log no. 4 as shown in the image.



7. Place log no. 5 so that it rests on log no. 4.



8. Place log no. 6 so that it rests on log no. 4.



9. Place log no. 7 so that it rests on log no. 4.



10. Place log no. 8 in the front right corner - Optional.



11. Sprinkle 1 bag of the ember chips in the front of the burning chamber. Ensure that you do not cover the pilot area and the holes there. Half of the second bag can be used behind the burner (optional).



12. Place the filament on the main burner for an extra glowing effect (circle). The filament must not come in contact with the thermocouples – use the chips to secure the filament.



WARNING!

Be aware that the main burner and pilot flame are kept free of all ornaments.

CHANGING FLUE CONNECTION

The fireplace comes ready for connecting to the top outlet, but can be changed to use the rear outlet by following the steps from 1-6:

STEP 1

Begin by tapping out the cover located behind the fireplace using a hammer. Apply gentle, controlled knocks to the cover. Make sure to exercise care and only strike the cover to avoid any potential damage.

The cover is fixed at four points. To make the process easier, use a chisel to direct the force while tapping. This will allow for more precise and effective removal.



STEP 2

Begin by loosening the three screws located on the outer flange at the top of the fireplace. Once the screws are sufficiently loosened, carefully remove the outer flange.

Loosen the three screws on the inner flange in the top of the combustion chamber. Carefully remove it.



STEP 3

Unscrew the top cover plate behind the fireplace and install it to the top of the fireplace.



STEP 4

Inside the fireplace, remove the small side panels by removing the lock in the top of the plates. To do this, push the lock up. Next, remove the side pieces. The rear plate can now be removed carefully.



GB

STEP 5

The inner cover plate can now be removed and installed in the top of the combustion chamber.



STEP 6

Now fit the outer flange behind the fireplace and the inner flange to the rear of the combustion chamber.



NOTE!

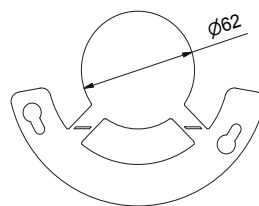
Handle the inner side and back plates with care, as they are easily damaged. While doing the change, make sure that the gaskets are in good condition. If not, they should be replaced.

RESTRICTORS

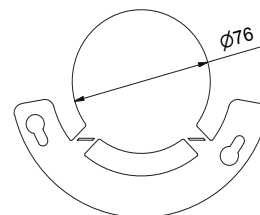
Two different restrictors are included for the gas fireplace. The restrictors are used to create the correct flow in the balanced flue.

It is important to see and assess from the flame picture whether the correct restrictor is fitted.

The flames should be blue/yellow at start-up, after 20 minutes the flames should be a clear yellow. If the desired combustion is not achieved, another restrictor can be installed.



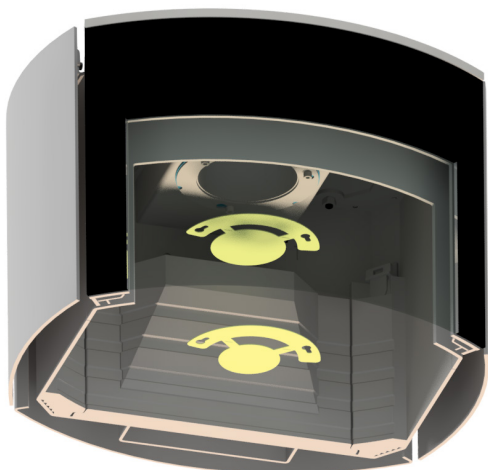
Restrictor B
Ø62



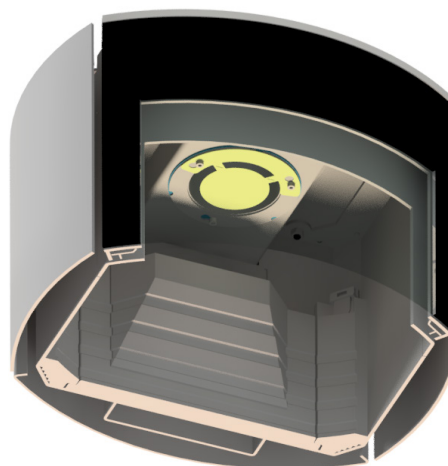
Restrictor A
Ø76

RESTRICTORS	
Vertical height up to 1-2 m	Restrictor B
Vertical height up to 2-5 m	Restrictor A
Vertical height up to 5-10 m	Restrictor B
Vertical height up to 10-15 m	No Restrictor

FOLLOW THESE STEPS TO MOUNT THE RESTRICTORS



1. Loosen two of the bolts.

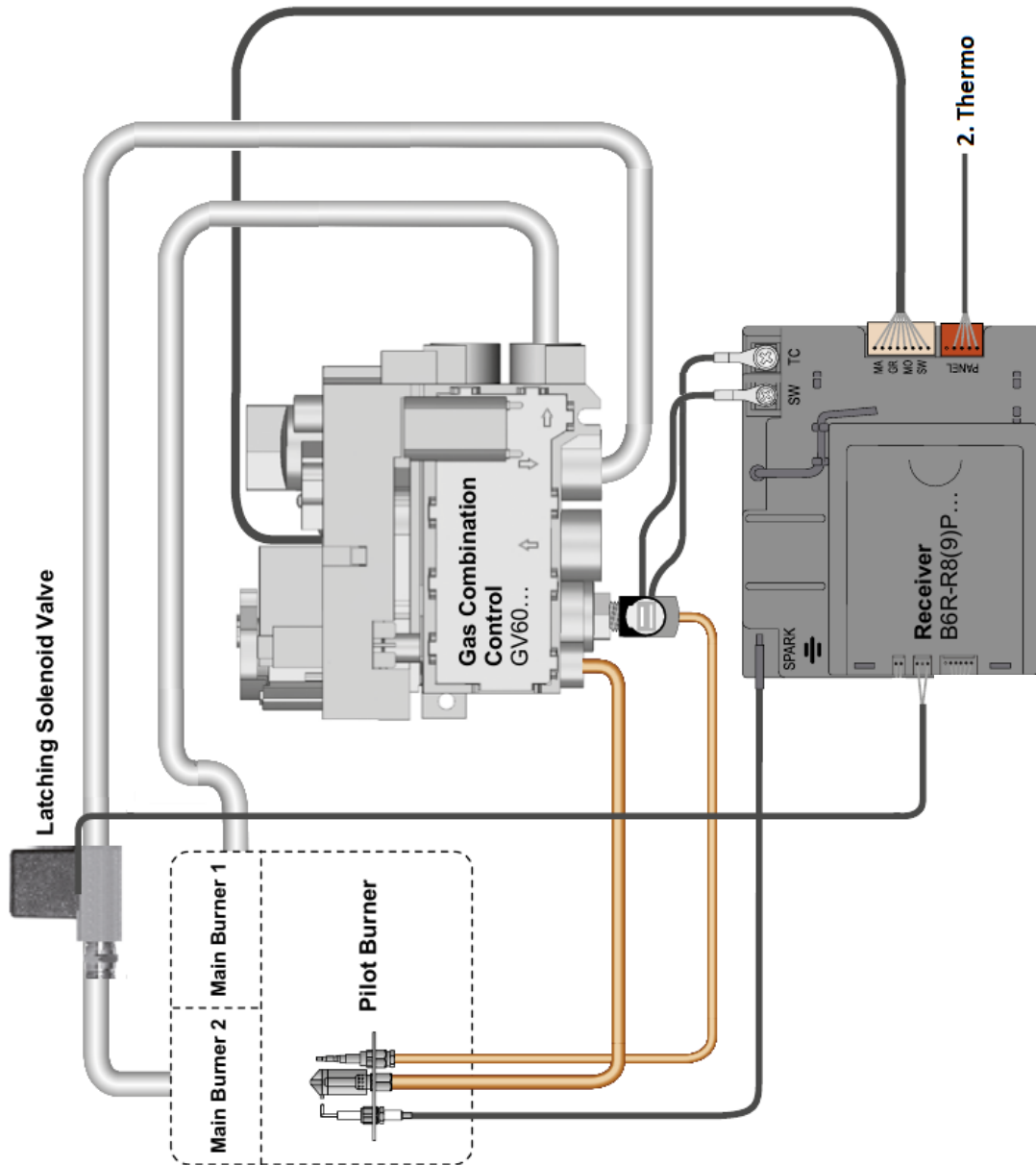


2. Mount the restrictor according to the illustration above, and then tighten the two bolts.

INSTALLATION OF ELECTRICAL AND GAS COMPONENTS

CONNECTION DIAGRAM

Use the diagram to get an overview of the individual electrical and gas components. Pictures of the parts will be provided on the following pages.

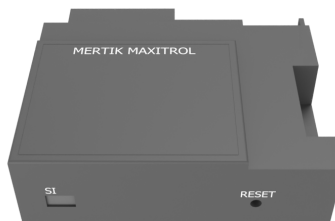


ELECTRICAL CONNECTION

The fireplace includes the receiver unit and a remote control. The package also contains batteries for both the receiver and the remote control. Alternatively, a power supply can be purchased to replace the battery-operated system.



Power supply and adapter
230 VAC / 50 Hz
6V adapter

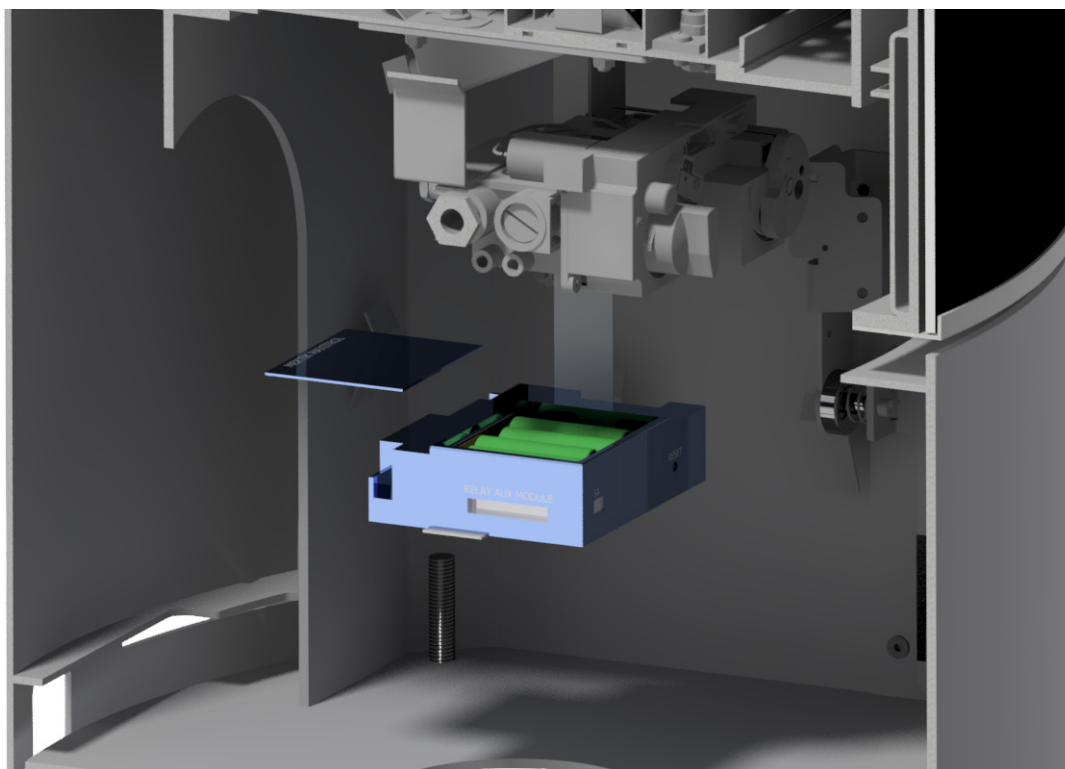


Receiver

WARNING!



If batteries are used in the receiver, replace the batteries at the beginning of each heating season. Remove the lower panel of the fireplace to access the receiver. Slide the top lid of the receiver to the left to access the batteries.



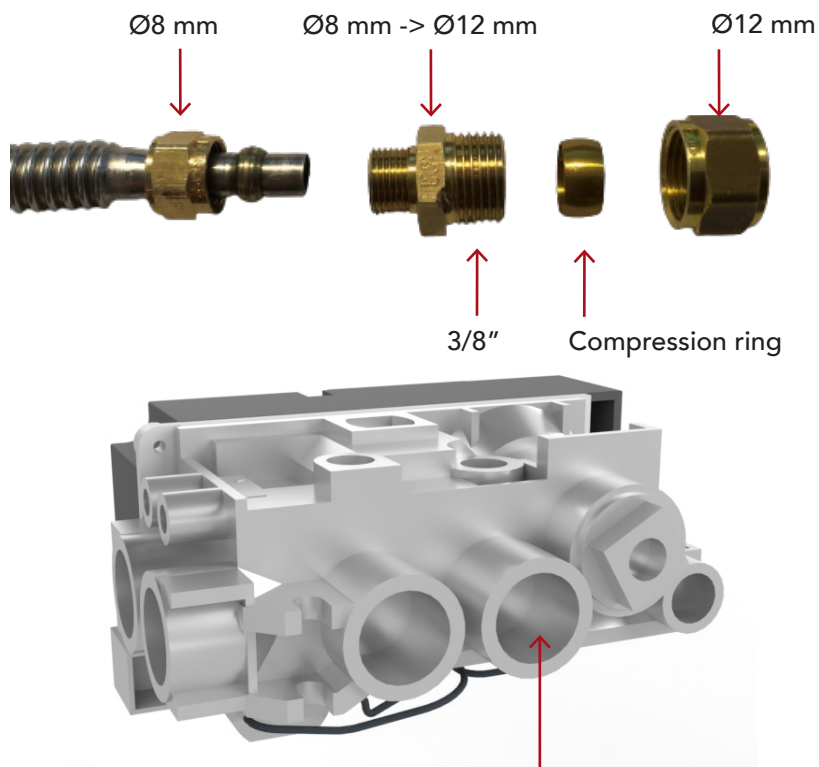
GAS CONNECTION

PROCEDURE

Connect your gas supply to the GV60 Combination Valve's flexible inlet line. The thread on the GV60 Combination Valve is 12 mm 3/8".

Secure against leaks in all gas connections made. Make sure that the gas is correctly connected.

Always install a stopcock and a measuring stud before the GV60 Combination Valve. The stopcock should be placed closest to the GV60 Combination Valve.



Ø12 mm 3/8" gas inlet – Only if the flexible line is not used

WARNING!

Do not twist or hard bend the flexible gas lines from the GV60 Combination Valve. Make sure that the flexible gas lines are not stressed, and not to damage the gas lines or couplings on the GV60 Combination Valve.



REMOTE CONTROL

In this section you can learn how to set up the remote control for the gas fireplace.

The remote control uses 2 x AAA 1.5V batteries.

Never use pointed tools to remove the batteries from the receiver and remote control.

The signal range between the remote control and the gas fireplace must not exceed 10 metres.



NOTE!

Once a year you should replace the batteries in the remote to ensure optimal operation. Replace all the batteries at the same time and use only good quality alkaline batteries.

SYNCHRONISATION OF THE REMOTE CONTROL AND RECEIVER

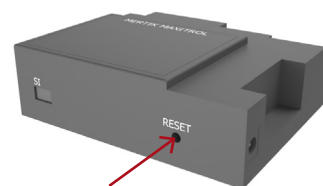
1. Press and hold the receiver's "reset" button until you hear a short 'beep' followed by a long 'beep' (see the arrow).
2. After the second beep, release the reset button. You now have 20 seconds to press the "down arrow" button on the remote control. Hold the button in, until you see the word "conn" on the remote control. Then release the button.
3. The remote will then count to 8 and two short beeps will sound from the receiver. The receiver and remote control are now synchronised, and the fireplace can be lit. If a long tone is heard, the synchronization must be performed again.

See the separate User Manual for remote control options and a guide for the WiFi module and the PUCK.

SYNCHRONISE THE REMOTE CONTROL
Scan the QR code to watch a how-to-video



Remote control



Receiver



USER MANUAL

Scan the QR code to see the user manual

BALANCED FLUE SYSTEM

A balanced flue pipe system contributes to a safer and more efficient operation of the gas fireplace and does not affect the house's pressure or air quality.

Please refer to the national/local regulations before installing the exhaust system. It must be ensured that the location of the exhaust terminal complies with the national building regulations.

This fireplace can be installed with either a roof terminal (C31), a wall terminal (C11), or a flexible system through an existing exhaust (C91). The fireplace must only be installed with a balanced exhaust system in the manner specified in this manual and the balanced flue configuration manual. It is important that the specifications supplied by the flue supplier is followed when installing the system.

The following exhausts have been approved in conjunction with the fireplace, and the fireplace must only be installed with these exhausts:

MANUFACTURER	SYSTEM	ADAPTER	SIZE
Schiedel	US	Not needed	Ø100/150
Schiedel	USD	Not needed	Ø100/150
Müllink & Grol	Multi-Vent	Adapter needed	Ø100/150
Poujoulat	DUOGAS	Adapter needed	Ø100/150
Jeremias	TWIN-GAS	Adapter needed	Ø100/150
Exodraft	RHGC Fan	Not needed	Ø100/150

OBSERVE THE FOLLOWING REGULATIONS

- Install the balanced flue pipe system in accordance with the flue manufacturer's instructions and the balanced flue configuration manual.

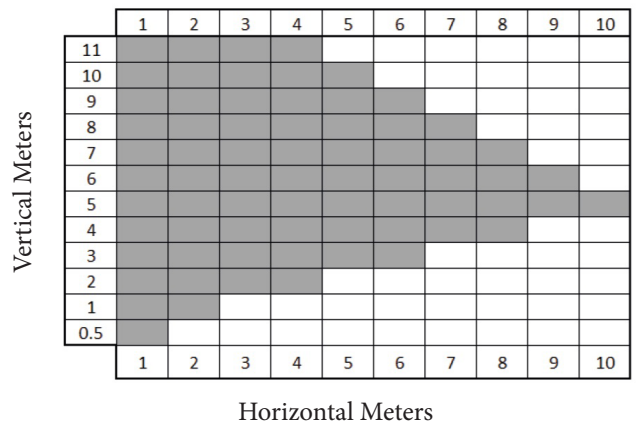
- Use the flue manufacturer's prescribed wall brackets and clamps to secure the flue pipe system.

Recommendations for brackets:

- Install a mounting bracket every 2 meters.
 - Always install a bracket after the first meter and the last meter.
 - Always install a bracket at every bend.
- Avoid mixing different types of balanced flue pipe systems.
 - Ensure that the balanced pipes are fully assembled and pushed together as much as possible.
 - Ensure there is a slope of 3 degrees back towards the fireplace to ensure proper drainage of condensation water. Only the wall terminal should have a slope away from the fireplace.

- Always maintain a distance of 50 mm from the chimney to combustible material. Always follow the regulations specified by the pipe supplier.
- Ensure that the balanced pipes do not come into contact with combustible material and are not placed in a closed environment with combustible material.
- Do not start the exhaust system with a measuring point, a bend, or an adjustable pipe. The fireplace must always start with a vertically flue pipe of 0.5 meters before introducing any bends.
- The exhaust for the gas fireplace must not exceed a total length of 15 meters. Each bend counting as 0.5 meters.

The following matrix can be used as a guide for routing options:



The following matrix can be used as a guide for restrictor options:

RESTRICTORS	
Vertical height up to 1-2 m	Restrictor B
Vertical height up to 2-5 m	Restrictor A
Vertical height up to 5-10 m	Restrictor B
Vertical height up to 10-15 m	No Restrictor

NOTE! Read the balanced flue configuration manual thoroughly before installation for detailed information on installation types, options, restrictor settings, and regulations. Use the QR code on this page to access the manual.

BALANCED FLUE CONFIGURATION MANUAL

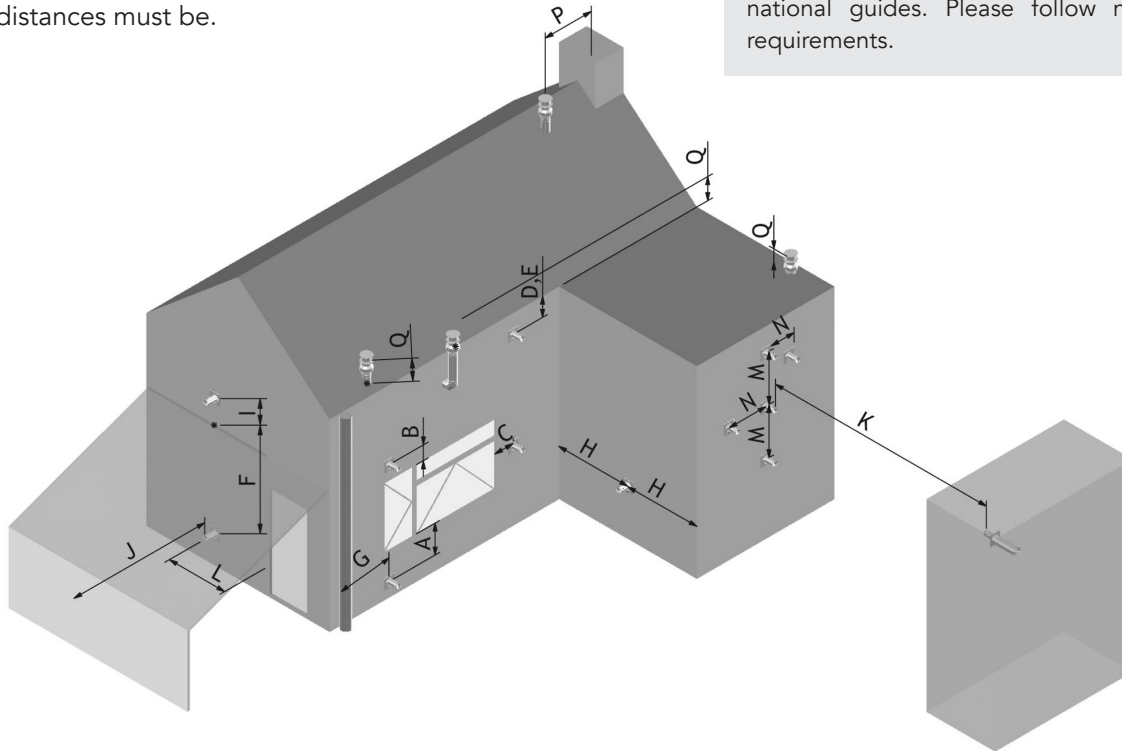
Scan the QR code to see a guide online

POSITIONING FLUE TERMINALS

The table below shows how different flue terminals can be positioned in the house and how large the safety distances must be.

NOTE!

Be aware that the safety distances below are English national guides. Please follow national regulatory requirements.



DIMENSIONS	TERMINAL POSITION	DISTANCE (mm)
A*	Directly below an opening, ventilation, opening window, etc.	600
B	Above an opening, ventilation, opening window, etc.	300
C	Adjacent to an opening, ventilation, opening window, etc.	400
D	Below gutters, soil pipes or drainpipes	300
E	Below eaves	300
F	Below balconies of a car port roof	600
G	From a vertical drainpipe or soil pipe	300
H	From an internal or external corner	600
I	Above a ground roof or balcony level	300
J	From a surface facing the terminal	600
K	From a terminal facing the terminal	600
L	From an opening in the car port (e.g. door, window into the dwelling)	1200
M	Vertically from a terminal on the same wall	1500
N	Horizontally from a terminal on the same wall	300
P	From a vertical structure on the roof	600
Q	Above an intersection with the roof	150

* In addition, the terminal should not be nearer than 300 mm to an opening in the building fabric formed for the purpose of accommodating a built in element such as a window frame.

DISTANCE TO COMBUSTIBLE

The Caro 90 G model is used to show the installation distances to combustibles. The distance measurements apply to all model variants (Caro 90 G, Caro 110 G and Caro 130 G) regardless of height.

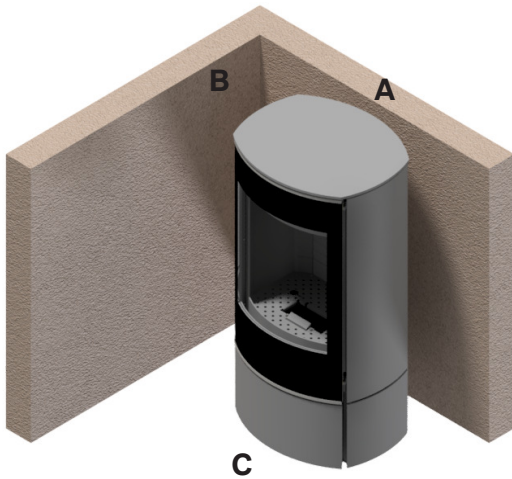
The distance measures are only divided into models with and without side glass, and whether the gas fireplace is a front or corner installation.

The distance to non-flammable material should always be at least 50 mm to allow for air circulation.

CARO GAS WITHOUT SIDE GLASS

Right-angled setup combustible wall model without side glass.

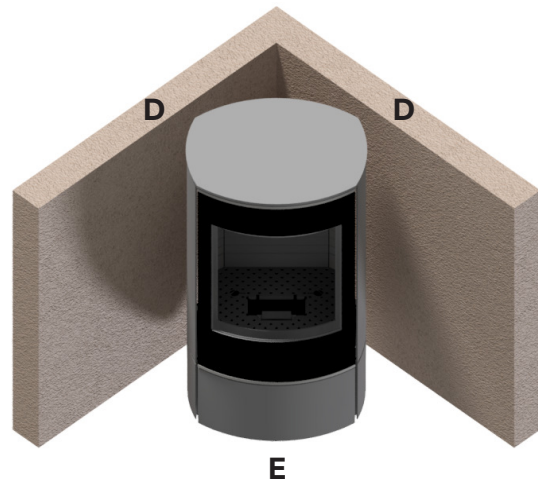
- A** Back 50 mm
- B** Side wall 250 mm
- C** Furnishing 700 mm



Front installation

Corner setup combustible wall model without side glass.

- D:** Back/side 50 mm
- E** Furnishing 700 mm

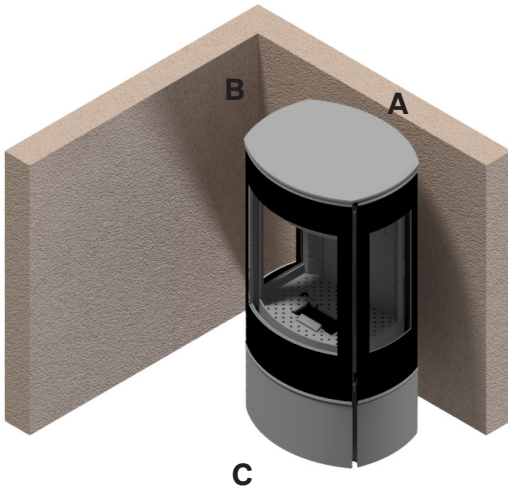


Corner installation

CARO GAS WITH SIDE GLASS

Right-angled setup combustible wall model with side glass.

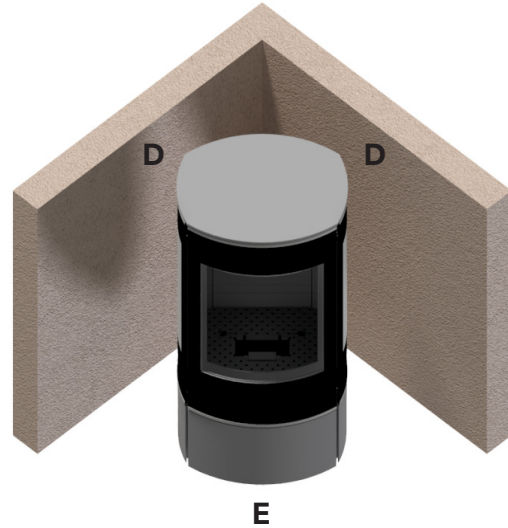
- A** Back 50 mm
- B** Side wall 300 mm
- C** Furnishing 700 mm



Front installation

Corner setup combustible wall model with side glass.

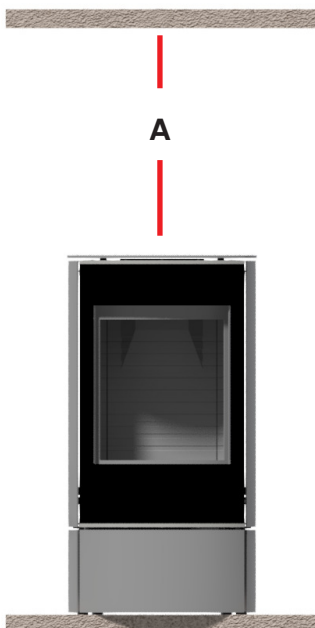
- D** Back/side 150 mm
- E** Furnishing 700 mm



Corner installation

CARO GAS FROM TOP PLATE TO CEILING

- A** Top plate to combustible ceiling 1000 mm



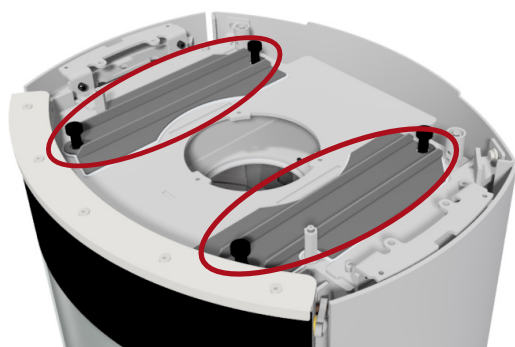
STARTING THE GAS FIREPLACE

Before igniting the fire for the first time, ensure that all the packaging, labels, etc., are removed from the fireplace and the glass is cleaned.

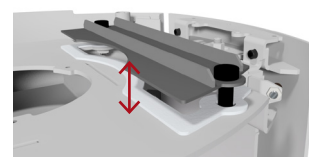
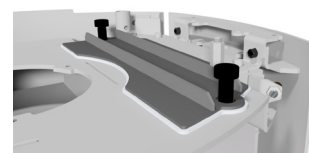
Read more about cleaning the gas fireplace on page 42.

PROCEDURE

1. Check that the delayed ignition flap can be easily lifted inside the fireplace roof (see the photos below).
Make sure that the gaskets are placed correctly and are not damaged.
2. Allow the fireplace to burn at a high heat for a couple of hours to allow the paint to cure.



Delayed ignition flaps



SOUNDS

The fireplace can emit a "clicking" sound when it is heating up and cooling down. This is due to the large temperature differences the material is exposed to.

DEW AND CONDENSATION

The fireplace can form dew on the fireplace glass at start-up. When the glass is cold and the appliance is lit, it may cause condensation and fog the glass. This condensation is normal and will disappear within 10-15 minutes as the glass and flue heats up.

NOTE!

Ventilate the room when you ignite the fireplace for the very first time. The fireplace may emit a little smoke and a slight odour when it is lit for the first time.

Ensure that the room is well ventilated during this time. Children and pets should be kept away from the fireplace during this process. Please exercise caution during this process: do not touch visible surfaces/glass, as these will become very hot.

WARNING!

Do not turn off the fireplace before all dew on the glass has gone!
If the fireplace is turned-off before the dew has gone, the water particles can damage the fireplace.

MANUAL EXTINGUISHING OF THE FIRE

To extinguish the gas fireplace manually (e.g., if you cannot find the remote control or the remote control has no batteries) shut off the gas supply and electrical supply.

If the fireplace has not been used for a longer period, follow the procedure for starting the gas fireplace above.

PURGING THE GAS PIPE

When the gas supply is connected for the first time, the supply lines will be filled with air. The gas supply can then be purged by unscrewing the inlet pressure tap on the side of the burner.

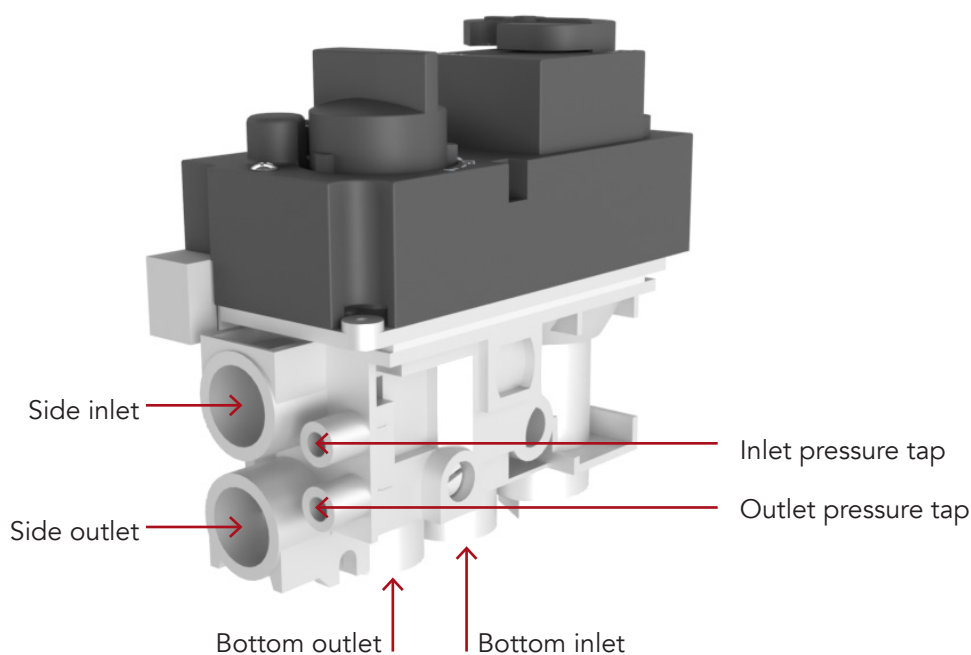
PURGING THE GAS PIPE

Scan the QR code to watch a how-to-video



NOTE!

When the purging is complete, re-tighten the "pressure tap" screws. Check the system for gas leaks.



FUNCTIONAL TEST

Read these steps to check the function of the start-up of the gas fireplace.

1. Ignite the fireplace.
2. Check that the pilot flame ignites.
3. Check the pilot flame remains lit.
4. Check that the main burner ignites easily within 20 sec.
5. Check that the main burner flame is in contact with the 2nd thermocouple.
6. Check that the cross ignition from the pilot flame to the main burner occurs easily and that the main burner and pilot flame remain lit.
7. Check that the secondary burners remain lit.
8. Switch off the fireplace completely. The fireplace may only be ignited again after the thermocouple has cooled down. This will take about 1-2 minutes.

PRESSURE SETTING ADJUSTMENT

The fireplace should be pressure adjusted according to the information label (see page 48). "Inlet pressure" (supply pressure to the GV60 Combination Valve) and "Burner pressure" (nozzle pressure) must ALWAYS be measured and, if necessary, corrected by an authorised installer.

BURNER PRESSURE

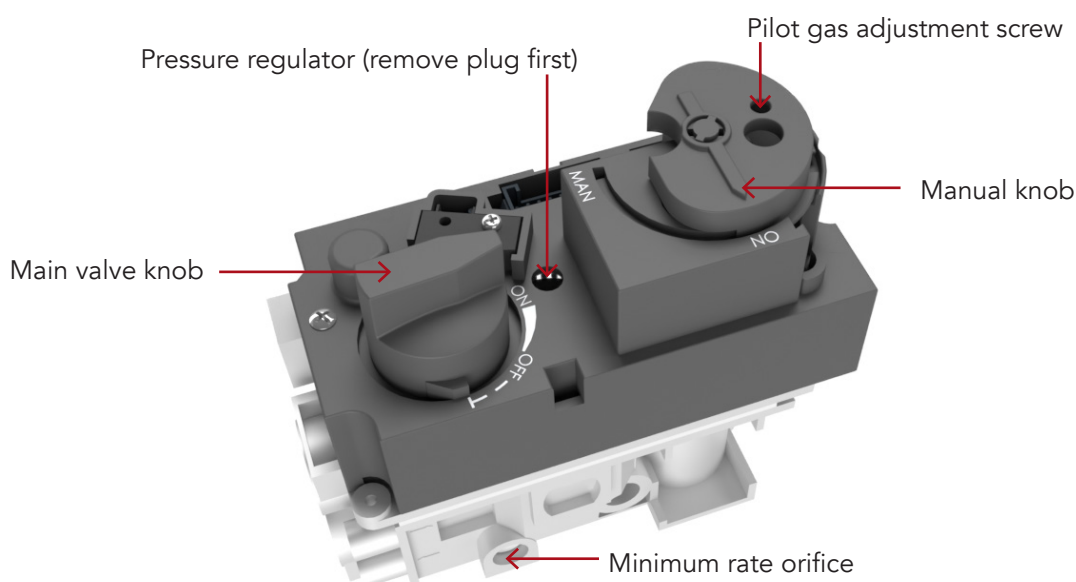
Scan the QR code to watch a how-to-video



GB

1. Loosen the screw to the "Outlet pressure tap" on the gas valve and connect a gas manometer.
2. Turn on the fireplace at maximum load, and let it burn for 45 minutes before measuring.
3. Check that the measured pressure agrees with the pressure stated on the information label.
4. The main burner pressure can be adjusted by removing the plug for the "pressure regulator".
5. Turn off the fireplace to minimum load.
6. The minimum burner pressure can be adjusted by the screw "minimum rate orifice".
7. After the pressure test is completed, re-tighten the "pressure tap" screws. Check the system for gas leaks.

The measured values must be within $\pm 10\%$ of the stated pressure. If this is not the case, contact the supplier.



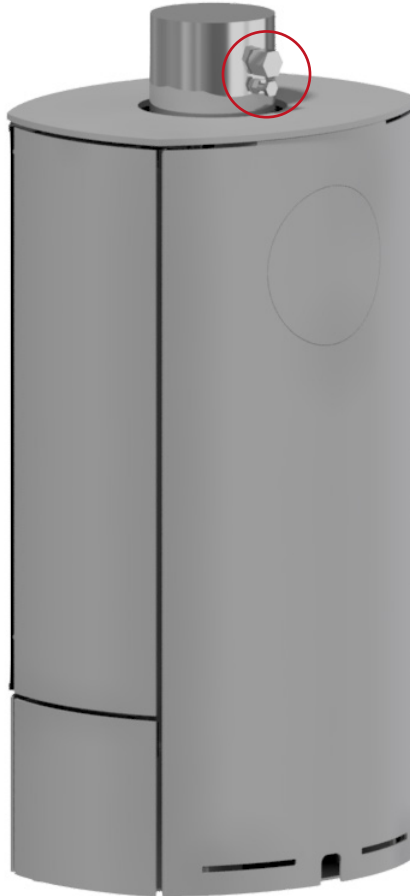
WARNING!

The pressure test and adjustment may only be performed by an authorised installer.

After the pressure test is completed and the gas manometer has been removed, re-tighten the "pressure tap" screws. Check the system for gas leaks.

CO AND O₂ MEASUREMENT

In certain countries, a measurement pipe is required to accurately document the CO level and flue temperature of the fireplace. The design of the pipe may vary depending on the manufacturer of the flue.



There are two points: the top one for CO measurements and the bottom one for O₂ measurements.

CO measurements are done when the fireplace has been running at full load for 45 minutes, The value must not exceed the level of national requirements. Wait 25 minutes between the measurements below.

CO levels must not exceed 1000 ppm. O₂ measurement in the outer pipe has to be minimum 19%.

CO measurement on maximum load

1. Put the fireplace in maximum load by pressing  twice quickly on the remote control.

CO measurement on minimum load

1. Push the  until the secondary burners are shut off.

2. Put the fireplace in minimum load by pressing  twice quickly on the remote control.

NOTE!

During the initial startup of the fireplace, it's possible for carbon monoxide (CO) levels to be elevated as the paint, oils, and other components settle.



SERVICE AND MAINTENANCE

We recommend a yearly service check of the fireplace to ensure a long and lasting fireplace with a beautiful flame.

SERVICE PROCEDURE

The fireplace must be inspected by an authorised gas installer or other professional in accordance with national law. The inspection must ensure the product's operation and safety.

Switch off the fireplace and shut off the gas supply. Make sure the fireplace is completely cold before you begin. RAIS cannot be held liable for injuries that result from touching a hot fireplace.

The steps below can be used as a guideline.

RECOMMENDED SERVICE GUIDELINE

1. Protect the floor by laying out a blanket or other covering.
2. Turn off the gas supply and electrical supply.
3. Open the door and carefully remove the ceramic logs and embers layer.
4. Use a vacuum cleaner to clean the burner and the perforated plate.
5. Raise and remove the secondary burners. Remove the perforated plate.
6. Vacuum the entire burner.
7. If needed, soot on the logs can be removed by a soft brush.
Clean the pilot burner assembly using a soft brush and a vacuum cleaner. Do not bend or straighten the thermocouple. If the thermocouple is worn down, we recommend changing it during a service.
8. Check that the pilot burner gaskets (green) are in good condition. We recommend to always exchange the gaskets doing service.
9. Refit the perforated plate.
10. Check the flue gas system and the flue terminal and ensure that they are not blocked.
11. Put back the embers layer and ceramic logs. Follow the manual, the logs and embers should be placed in a very certain way – See the manual for placing the logs in the correct way.
Check that the gaskets for the glass are in good condition.
12. Clean and lock the door.
13. Switch on the gas and electrical supply and check for leaks. Check the burners and pilot unit to ensure that they are in good working condition.
Ignite the fireplace and check the pressure setting.
14. Ensure that the fireplace is safe to use.
15. Worn out parts should be replaced with new original parts.
16. Be sure to dispose of the replaced parts in the appropriate waste containers.

NOTE!

The fireplace must be inspected by an authorised gas installer or other professional in accordance with national law.



CLEANING

The fireplace should be cleaned of dust and foreign objects when you use it for the first time in the year, and especially if the fireplace has not been used for a longer period.

You could do this using a soft brush and a vacuum cleaner or by using a damp cloth with a non-abrasive cleaning agent. Never use corrosive or abrasive substances to clean the fireplace. The fireplace must be cold before you clean it.

If the glass has a layer of soot, clean the glass using a glass cleaner. Clean the outside of the fireplace using a dry cloth.

Before using the fireplace for the first time in the year, the flue system and flue gas connection must always be checked for blockages.

Check the outside and inside of the fireplace for any damage and pay particular attention to gaskets. Only original RAIS spare parts may be used.

CLEANING THE CERAMIC LOGS

1. Remove the ceramic logs as described in steps 1-3 in "Recommended Service Guideline" on page 41.
2. Carefully clean the ceramic logs using a soft brush and a vacuum cleaner. Damaged parts may only be replaced by original RAIS specified parts.
3. The scrapped ceramic parts should be disposed of in the correct municipal disposal centres. It is recommended that you use a vacuum cleaner with a HEPA filter system.
4. Put back the embers layer and fit the glass. Ensure that the fireplace functions correctly and is safe to use.

WARRANTY

RAIS offers a 2-year warranty on all gas fireplaces. The warranty period begins upon delivery of the product.

The warranty – provided by RAIS – is a supplement to national guarantee requirements applicable in the country where the fireplace was purchased.

GENERAL

- Renewal or replacement of components does not extend the warranty period.
- The warranty is only valid if the gas fireplace is sold through an official RAIS dealer.

MAINTENANCE OF YOUR GAS FIREPLACE

We recommend having your gas fireplace inspected by a professional once a year to ensure the product's operation and safety. Read more on page 41.

THE WARRANTY COVERS:

- Documented malfunctions due to faulty workmanship.
- Documented faulty material.
- The gas fireplace cabinet, which is backed by a 5-year warranty.

THE WARRANTY DOES NOT COVER:

- The appearance, colour change and patina of stainless steel surfaces.
- Thermal expansion noises.

THE WARRANTY BECOMES VOID:

- If installation or repair does not comply with national or local law.
- In the event of damage due to external influences and the use of unsuitable fuels.
- If the gas fireplace has not been installed according to the installation instructions or used according to the user manual.
- In case of failure to comply with statutory or recommended installation regulations and in the event of any owner-made changes to the fireplace.
- In case of a lack of maintenance (see the section in the Installation Manual regarding Service and Maintenance).
- When using non-original components that do not have the same specifications as the original.
- In case of damage caused by external factors (such as shock, lightning, impact, flooding or overheating of the fireplace) during transport, storage or installation.
- In case of defects due to neglect, misuse and/or gross negligence.

IN CASE OF DAMAGE, CONTACT YOUR DEALER

In the event of damage to your gas fireplace, please contact the dealer where the product was purchased and provide the serial number.

In the event of a warranty claim, RAIS determines the way in which the damage will be repaired. In the event of repair, we will ensure professional execution.

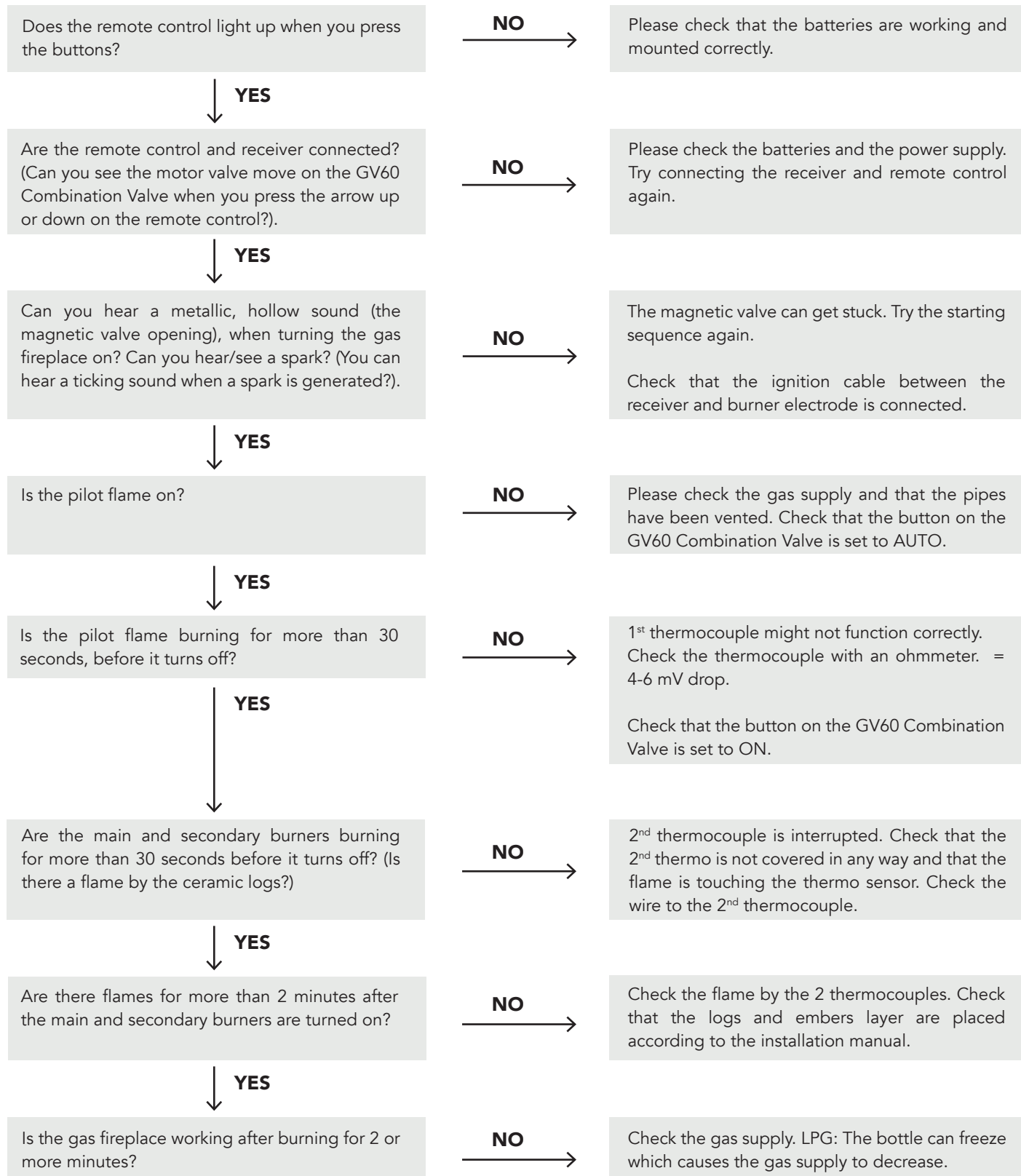
For warranty claims on parts that have been replaced or repaired, please refer to national/EU laws and regulations on renewed warranty periods.

The warranty provisions in effect at any time may be obtained from RAIS.

TROUBLESHOOTING

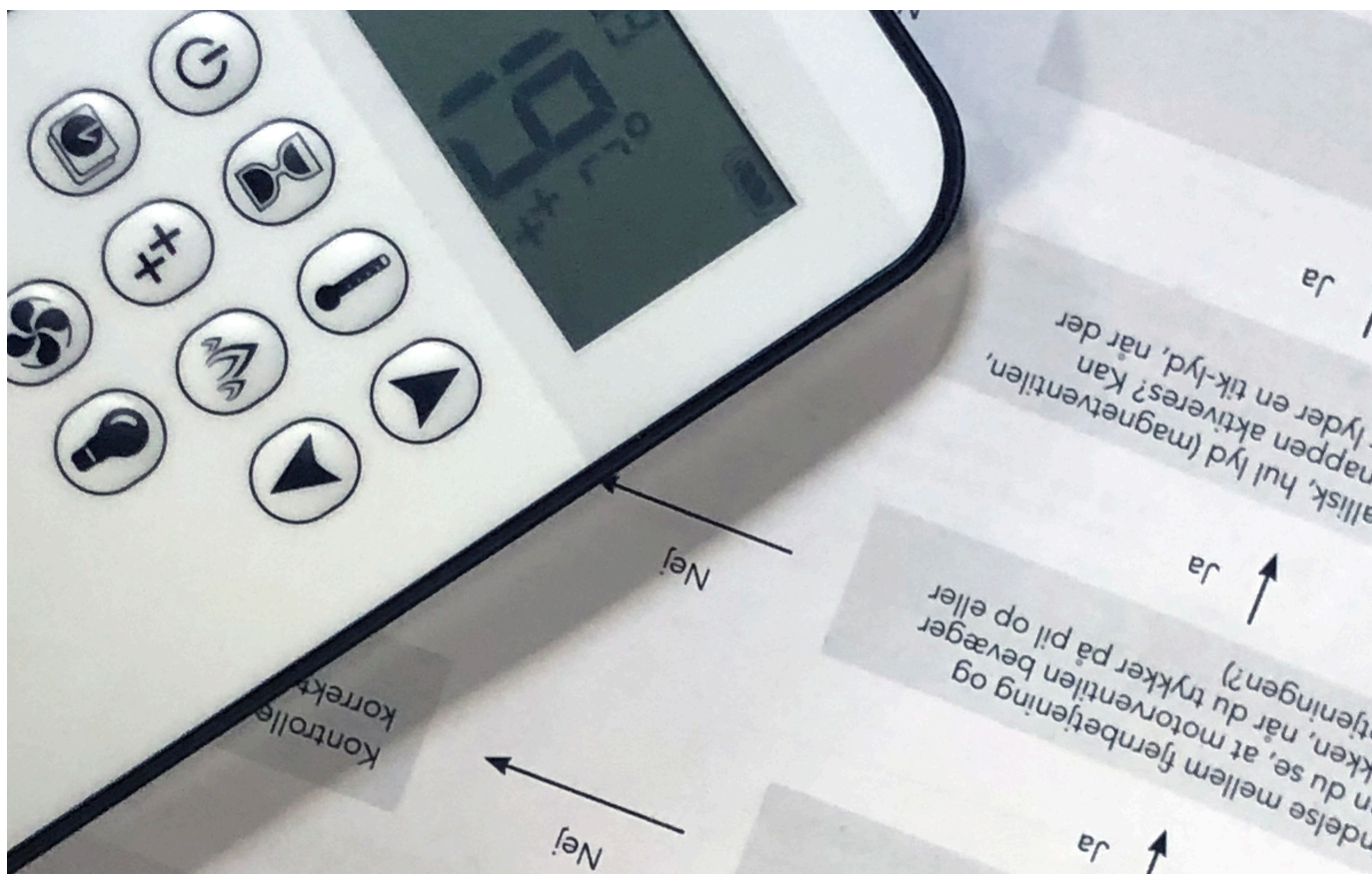
If you, against all expectation, should experience issues with your fireplace, please try the following steps. If the issues persist, please contact your RAIS dealer and state in which step the problem occurred.

The most common problem is a lost connection between the remote control and receiver due to lack of power. Therefore, we recommend changing the batteries in your remote/receiver and resetting the connection once a year. Please follow the guide on page 32.



ERROR CODES ON THE REMOTE CONTROL






ERROR CODE	SYMPTOM	POSSIBLE CAUSE
F04	<ul style="list-style-type: none"> No pilot within 30 sec. Note: After 3 failed ignition sequences F06 is displayed. 	<ul style="list-style-type: none"> No gas supply Air in pilot supply line No spark Reversed polarity in 1st thermocouple wiring
F06	<ul style="list-style-type: none"> 3 failed ignition sequences within 5 minutes Fire is not responding, no pilot flame 	<ul style="list-style-type: none"> No gas supply Air in pilot supply line No spark Reversed polarity in 1st thermocouple wiring Incorrect pilot orifice if the valve has been converted from LPG to NG or vice versa.
F09	<ul style="list-style-type: none"> Fire is not responding No electric control of the fire 	<ul style="list-style-type: none"> The down arrow button was not pressed during pairing. The receiver and handset are not synced
F40	<ul style="list-style-type: none"> Battery icon flashes on the handset display 	<ul style="list-style-type: none"> Low battery in the handset
F46	<ul style="list-style-type: none"> Fire is not responding Intermittent response No electronic control of the fire 	<ul style="list-style-type: none"> No or bad connection between the receiver and handset No power to the receiver Low communication range (Main adapter faulty, handset not communicating with the receiver)



ERROR CODES ON THE APP

ERROR CODE	MESSAGE SHOWN IN APP	SYMPTOM	POSSIBLE CAUSE
F02	F02 Contact Service	<ul style="list-style-type: none"> 5 sec. beep from the receiver Fire is not responding, no ignition 	<ul style="list-style-type: none"> Microswitch not making contact with the cam on the motor knob Motor wiring incorrect Reversed polarity or faulty microswitch Bent motor knob
F03	F03 Contact Service	<ul style="list-style-type: none"> 5 sec. beep from the receiver Ignition process is interrupted Fire is not responding, no ignition 	<ul style="list-style-type: none"> Thermocouple wiring incorrect or interrupted ON/OFF switch in "O" (OFF) position
F04	F04 Ignition Sequence malfunction Wait 1 minute Retry ignition	<ul style="list-style-type: none"> No pilot flame within 30 sec. NOTE: After 3 failed ignition sequences F06 is displayed 	<ul style="list-style-type: none"> No gas supply Air in pilot supply line No spark Reversed polarity in thermocouple wiring Incorrect pilot orifice if valve has been converted from LPG to NG or vice versa
F06	F06 Contact Service	<ul style="list-style-type: none"> 3 failed ignition sequences within 5 minutes Fire is not responding, no pilot flame 	<ul style="list-style-type: none"> No gas supply Air in pilot supply line No spark Reversed polarity in thermocouple wiring Incorrect pilot orifice if the valve has been converted from LPG to NG or vice versa
F10	F10 Contact Service	<ul style="list-style-type: none"> Pilot light lit Main burner fails to ignite and pilot light shuts off Ignition is blocked for 2 minutes 	<ul style="list-style-type: none"> 2nd thermocouple is out of position 2nd thermocouple wiring incorrect Gas logs out of position Gas ports for burner are blocked
F12	F12 Contact Service	<ul style="list-style-type: none"> Motor turns to pilot position Fan at level 4 for 10 minutes 	<ul style="list-style-type: none"> Receiver temperature exceeds 60°C Receiver powered by batteries Blocked flue, no air circulation in firebox Heat shield incorrectly installed
F13	F13 Contact Service	<ul style="list-style-type: none"> Motor turns to pilot position 	<ul style="list-style-type: none"> Receiver temperature exceeds 80°C
F14	F14 Contact Service	<ul style="list-style-type: none"> 5 sec. beep from the receiver Fire is not responding, no ignition 	<ul style="list-style-type: none"> Receiver software doesn't support on 2nd thermocouple Wrong receiver
F15	F15 Contact Service	<ul style="list-style-type: none"> 5 sec. beep from the receiver Fire is not responding, no ignition 	<ul style="list-style-type: none"> 2nd thermocouple is not connected 2nd thermocouple wiring
F16	F16 Contact Service	<ul style="list-style-type: none"> No temperature shown in the app 	<ul style="list-style-type: none"> Handset out of range for more than 1.5 h Electrical interference
F17	F17 Contact Service	<ul style="list-style-type: none"> No ignition (fire is not responding) 	<ul style="list-style-type: none"> Inlet voltage exceeds 7.25 V Malfunction of the main adapter
F19	F19 Contact Service	<ul style="list-style-type: none"> Pilot drops when motor opens main gas 	<ul style="list-style-type: none"> Insufficient thermo-voltage Thermocouple malfunction Low inlet gas pressure Improper thermocouple flame impingement Carbon build-up on the thermocouple Valve malfunction Resistance in thermocurrent circuit
F26	F26 Contact Service	<ul style="list-style-type: none"> It is not possible to increase flame height after ignition Fan at level 4 for 10 minutes (T>60°C) 	<ul style="list-style-type: none"> Receiver temperature exceeds 60°C
F28	F28 On-Demand Pilot	<ul style="list-style-type: none"> Pilot shuts off after a predefined time 	<ul style="list-style-type: none"> Pilot shuts off after no motor movement for a predetermined time
F31	F31 Contact Service	<ul style="list-style-type: none"> Fire is not responding No electronic control of the fire 	<ul style="list-style-type: none"> Receiver malfunction
F41	F41 Check WiFi	<ul style="list-style-type: none"> Fire is not responding No electronic control of the fire 	<ul style="list-style-type: none"> No power to WiFi module or router No WiFi connection between WiFi module and router, and/or smart device
F43	F43 No receiver connected Contact Service	<ul style="list-style-type: none"> Fire is not responding No electronic control of the fire 	<ul style="list-style-type: none"> No communication between the receiver and WiFi module
F44	F44 Contact Service	<ul style="list-style-type: none"> No temperature shown in the app "N.a." (not applicable) displayed in the app 	<ul style="list-style-type: none"> Handset not within range Low battery in the handset

ERROR SOUND DIAGRAM

<p>Confirmation ignition start (EU) Ignition sequence (US)</p>	
<p>Failure: Micro switch defect, ON/OFF Switch open, Wiring not comple- ted, Learn function failed, no 2nd Thermocouple connected to 2nd Thermocouple version (Recei- ver: yellow lable), Ignition failed because 2nd Thermocouple has not cooled down</p>	
<p>Low Battery (during the motor turns)</p>	
<p>Reset (also new Batteries or Power ON)</p>	
<p>Learning function</p>	

INFORMATION LABEL

This gas fireplace is tested and certified for use in several countries. The gas fireplace has been tested for use with natural gas, town gas, LPG and biogas.

GB

23

Product ID: 2575DM29341

2575-24

0359-24

C11
C31
C91

Produced at: RAISA/S, Industrivej 20, 9900 Frederikshavn, Denmark

Caro 90 Gas
 Caro 130 Gas

Caro 110 Gas

This appliance must be installed in accordance with the rules in force, and only used in a sufficiently ventilated space. Consult instructions before installation and use of this appliance. Tested and Certified for use on Biopropane. Efficiency class 1.

Serial number _____ Burner ID. _____

Gas category and supply pressure		Input (Hi, kW)	Output (Hi, kW)	Min. Output (Indicative kW)	Burner pressure high (Hot)	Burner pressure low (Hot)	Country of destination	
<input type="checkbox"/> NATURAL GAS	I2H/ I2E	G20 @ 20 mbar	8,1	6,3	1,7	13,8 Interval 12,4 - 15,2	7 Interval 6,3 - 7,7	AT, CH, CZ, DE, DK, EE, ES, FI, GB, GR, HR, IE, IT, LT, LU, LV, NO, PL, PT, RO, SE, SI, SK, TR
	I2ELL	G25 @ 20 mbar	6,8	4,9	1,7	13,9 12,5 - 15,3	7 6,3 - 7,7	DE
	I2E+	G20@20 mbar	8,1	6,3	1,7	13,8 12,4 - 15,2	7 6,3 - 7,7	BE, FR
	I2E+	G25@25 mbar	7,6	5,8	1,7	15 13,5 - 16,5	7 6,3 - 7,7	BE, FR
	I2L / I2EK / I2 (43.46-45.3 MJ/ m3 Oc)	G25.3 @ 25 mbar	7,7	5,8	1,7	15 13,5 - 16,5	7 6,3 - 7,7	NL
<input type="checkbox"/> TOWN GAS		G150.1 @ 8 mbar	8,5	6,7	1,6	6 Interval 5,4 - 6,5	2 Interval 2 - 2,3	DK, SE
		G150.1 @ 15 mbar	11,9	9,2	2,1	13 11,7 - 14,2	3 3 - 3,3	DK, SE
<input type="checkbox"/> LPG	I3+ (28-30/37)	G30@28-30 mbar	7,2	5,7	1,8	29 Interval 26,1 - 31,9	15 Interval 13,5 - 16,5	BE, CH, CY, CZ, ES, FR, GB, GR, IE, IT, PT, SI, SK, TR
	I3+ (28-30/37)	G31@37 mbar	7,2	5,7	1,8	30 27 - 33	15 13,5 - 16,5	BE, CH, CY, CZ, ES, FR, GB, GR, IE, IT, PT, SI, SK, TR
	I3P(30)	G31@30 mbar	6,3	5	1,7	29 26,1 - 31,9	15 13,5 - 16,5	FI, NL, RO
	I3P(37)	G31@37 mbar	7,2	5,7	1,8	30 27 - 33	15 13,5 - 16,5	BE, CH, CZ, ES, FR, GB, GR, HR, IE, IT, LT, NL, PL, PT, SL, SK, TR
	I3P(50)	G31@50 mbar	7,2	5,7	1,8	30 27 - 33	15 13,5 - 16,5	AT, CH, CZ, DE, NL, SK
	I3B/P(30)	G30@30 mbar	7,2	5,7	1,8	29 26,1 - 31,9	15 13,5 - 16,5	BE, BG, CY, DK, EE, FI, FR, GB, GR, HR, HU, IT, LT, MT, NL, NO, RO, SE, SI, SK, TR
	I3B/P(30)	G31@30 mbar	6,3	5	1,7	29 26,1 - 31,9	15 13,5 - 16,5	BE, BG, CY, DK, EE, FI, FR, GB, GR, HR, HU, IT, LT, MT, NL, NO, RO, SE, SI, SK, TR
	I3B/P(50)	G30/G31@50	7,2	5,7	1,8	30 27 - 33	15 13,5 - 16,5	AT, CH, CZ, DE, FR, SK

Produced for:
SVGW Nr. 18-035-3

ATTIKA FEUER AG, Brunnmatt 16, CH-6330 Cham / RAISA/S, Industrivej 20, DK-9900 Frederikshavn

TECHNICAL DATA SHEET – NATURAL GAS

Caro 90, Caro 110 and Caro 130

CARO GAS		NATURAL GAS													
Producer		RAIS													
Model		Caro 90 Caro 110 Caro 130													
Country code		AT, CH, CZ, DE, DK, EE, ES, FI, GB, GR, HR, IE, IT, LT, LU, LV, NO, PL, PT, RO, SE, SI, SK, TR				DE				BE, FR				NL	
Gas category		I2H/I2E		I2ELL		I2E+		I2L/I2EK/I2		I2E+		I2L/I2EK/I2			
Inlet gas pressure		G20@20	Interval	G25@20	Interval	G20@20	Interval	G25@25	Interval	G20@20	Interval	G25@25	Interval	G20@20	Interval
Nominal input		20,0		20,0		20,0		25,0		20,0		25,0		25,0	
Nett rate / calorific value (Hi)		8,1		6,8		8,1		7,6		8,1		7,7		7,7	
Max. Output		6,3		4,9		6,3		5,8		6,3		5,8		5,8	
Min. Output		1,7		1,7		1,7		1,7		1,7		1,7		1,7	
Volumetric flow rate		0,8		0,8		0,8		0,9		0,8		0,9		0,9	
Burner pressure high (hot)*		13,8	12,4	15,2	13,9	12,5	15,3	15,0	12,4	15,2	13,8	15,0	13,5	16,5	16,5
Burner pressure min. (hot)**		7,0	6,3	7,7	7,0	6,3	7,7	7,0	6,3	7,7	7,0	6,3	7,7	7,0	6,3
Concentric approvals		C11 / C31 / C91													
Exodraft Balanced Fan		Approved													
Concentric connection		Ø100 mm - Ø150 mm													
Type of burner		3713500													
Batteries for remote control		2x 1.5V AAA													
Electrical connection		230 VAC / 50 Hz													
(Option)		6 V adapter													
Gas connection		To GV60 - 3/8" G / Ø12 mm To Flex hose - 1/2" G / Ø8 mm													
Injector marking		120 Center, 260 Left, 260 Right													
Air		Main venturi: Air ½ open Secondary venturis: One closed side / One hole side													
Air Snorkel installation		Main venturi: Air fully open Secondary venturis: One fully open side / One hole side													
Pilot marking		G30-ZP2-312-31.1													
Efficiency class		1													
Nox class		5													

* Double burners maximum - The appliance is switched on. Been burning for 45 minutes.

** Double burners at minimum - The appliance is switched on. Been burning for 45 minutes.

TECHNICAL DATA SHEET – LPG

Caro 90, Caro 110 and Caro 130


CARGO GAS		LPG																	
Producer		RAIS																	
Model		Caro 90 Caro 110 Caro 130																	
Country code		BE, CH, CY, CZ, ES, FR, GB, GR, IE, IT, PT, SI, SK, TR			FI, NL, RO			BE, CH, CZ, ES, FR, GB, GR, HR, IE, IT, LT, NL, PL, PT, SL, SK, TR			BE, BG, CY, DK, EE, FI, FR, GB, GR, HR, HU, IT, LT, MT, NL, NO, RO, SE, SI, SK, TR			AT, CH, CZ, DE, FR, SK					
Gas category		I3+ (28-30/37)			I3P (30)			I3P (37)			I3P (50)			I3B/P (30)			I3B/P (50)		
Inlet gas pressure		Mbar			Mbar			Mbar			Mbar			Mbar			Mbar		
Nominal input		kWh			kWh			kWh			kWh			kWh			kWh		
Nett rate / calorific value (HI)		kWh			kWh			kWh			kWh			kWh			kWh		
Max. Output		kWh			kWh			kWh			kWh			kWh			kWh		
Min. Output		kWh			kWh			kWh			kWh			kWh			kWh		
Volumetric flow rate		m ³ /hr			m ³ /hr			m ³ /hr			m ³ /hr			m ³ /hr			m ³ /hr		
Burner pressure high (hot)*		Mbar			Mbar			Mbar			Mbar			Mbar			Mbar		
Burner pressure min. (hot)**		Mbar			Mbar			Mbar			Mbar			Mbar			Mbar		
Concentric approvals		C11 / C31 / C91																	
Exodraft Balanced Fan		Approved																	
Concentric connection		Ø100 mm - Ø150 mm																	
Type of burner		3713500LPG																	
Batteries for remote control		2x 1.5V AAA																	
Electrical connection		230 VAC / 50 Hz 6 V adapter																	
Gas connection		To GV60 - 3/8" G / Ø12 mm To Flex hose - 1/2" G / Ø8 mm																	
Injector marking		80 Center, 120 Left, 120 Right																	
Air		Main venturi: The air is completely open Secondary venturis: Fully open on both sides																	
Pilot marking		G30-ZP2 271-27.1																	
Efficiency class		1																	
Nox class		5																	
Inlet gas pressure		29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	29,0	
Nominal input		7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	7,2	
Nett rate / calorific value (HI)		5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	5,7	
Max. Output		1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	
Min. Output		0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	
Volumetric flow rate		26,1	31,9	30,0	27,0	33,0	29,0	26,1	31,9	30,0	27,0	33,0	29,0	26,1	31,9	30,0	27,0	33,0	
Burner pressure high (hot)*		13,5	16,5	15,0	13,5	16,5	15,0	13,5	16,5	15,0	13,5	16,5	15,0	13,5	16,5	15,0	13,5	16,5	
Burner pressure min. (hot)**		15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	
Concentric approvals		C11 / C31 / C91																	
Exodraft Balanced Fan		Approved																	
Concentric connection		Ø100 mm - Ø150 mm																	
Type of burner		3713500LPG																	
Batteries for remote control		2x 1.5V AAA																	
Electrical connection		230 VAC / 50 Hz 6 V adapter																	
Gas connection		To GV60 - 3/8" G / Ø12 mm To Flex hose - 1/2" G / Ø8 mm																	
Injector marking		80 Center, 120 Left, 120 Right																	
Air		Main venturi: The air is completely open Secondary venturis: Fully open on both sides																	
Pilot marking		G30-ZP2 271-27.1																	
Efficiency class		1																	
Nox class		5																	

* Double burners maximum - The appliance is switched on. Been burning for 45 minutes.
** Double burners at minimum - The appliance is switched on. Been burning for 45 minutes.

TECHNICAL PARAMETERS



Technical information for gaseous fuel local space heaters

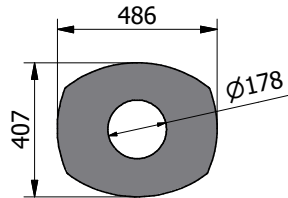
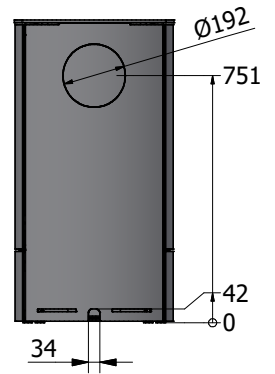
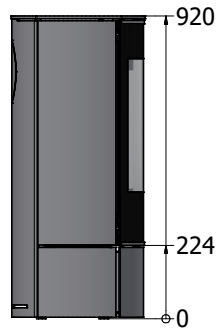
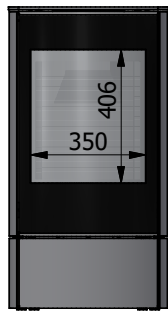
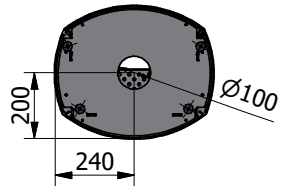
Manufacturer		Rais A/S Industrivej 20 DK - 9900 Frederikshavn										
Product name		RAIS										
Model identifier		CARO GAS 90, 110 og 130										
Equivalent models		N/A										
Test report nr.		G105031223										
Harmonised European standards		EN613:2021										
Indirect heating functionality		No										
Direct heat output		6,3 kW										
Indirect heat output		No										
Fuel type		Gaseous										
Seasonal space heating energy efficiency		91 %										
Energy efficiency index (EEI)		88										
Fuel	Fuel type	Space heating emission		Heat output						Useful efficiency (NCV)		
		NO _x	Nomial heat output			Minimum heat output			Useful efficiency at nominal heat output			
			[mg/kWh _{thermal}] (GCV)	Symbol	Value	Unit	Symbol	Value	Unit	Symbol	Value	Unit
High calorific natural gas, G20	G20	< 130	P _{nom}	6,3	kW	P _{min}	1,7	kW	η _{th, nom}	91	%	
High calorific natural gas, G25	G25	< 130	P _{nom}	4,9	kW	P _{min}	1,7	kW	η _{th, nom}	86	%	
Propane / Butane	G30	< 130	P _{nom}	5,7	kW	P _{min}	1,8	kW	η _{th, nom}	92	%	
Propane / Butane	G31	< 130	P _{nom}	5	kW	P _{min}	1,7	kW	η _{th, nom}	92	%	
Auxiliary power consumption		Type of heat output/room temperature control (select one)										
At nominal heat output	e _{l, max}	N/A	kW	single stage heat output, no room temperature control							no	
At minimum heat output	e _{l, min}	N/A	kW	two or more manual stages, no room temperature control							no	
In standby mode	e _{l, sh}	N/A	kW	with mechanic thermostat room temperature control							no	
				with electronic room temperature control							no	
				with electronic room temperature control plus day timer							no	
				with electronic room temperature control plus week timer							yes	
				Other control options (multiple selections possible)								
				room temperature control, with presence detection							no	
				room temperature control, with open window detection							no	
				with distance control option							yes	
				with adaptive start control							no	
				with working time limitation							no	
				with black bulb sensor							no	
Permanent pilot flame power requirement												
Pilot flame power requirement (if applicable)	P _{pilot}	N/A	kW									
Specific precautions for assembly, installation or maintenance		Precautions for assembly, installation and maintenance are described in: - Installation manual - User manual - Available manuals and guides; Flue manual, Exodraft manual and WiFi manual.										
Name and signature of the authorised signatory		 John Engell, R&D										

CARO 90 G

GB



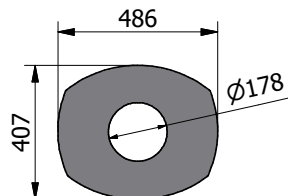
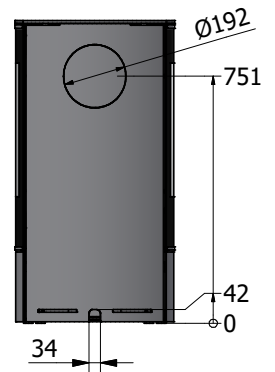
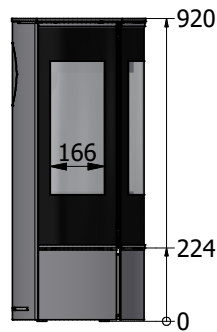
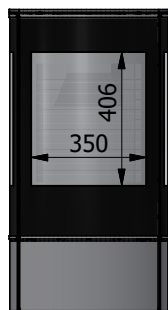
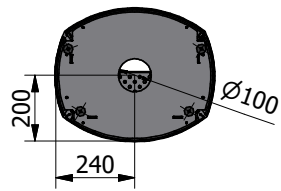
Without side glass
(glass door)



CARO 90 G



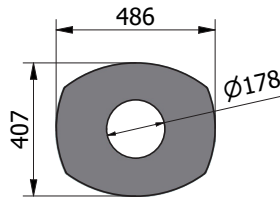
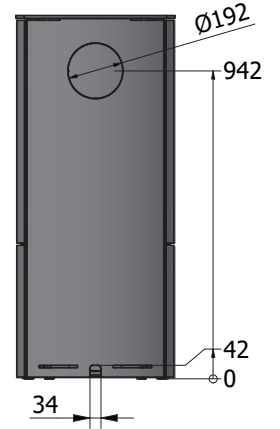
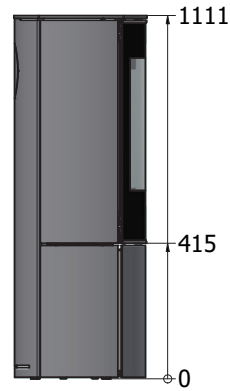
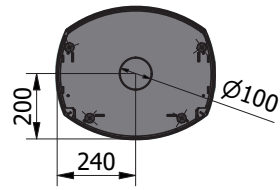
With side glass
(glass door)



CARO 110 G



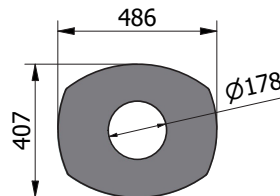
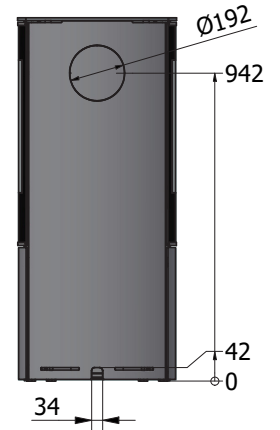
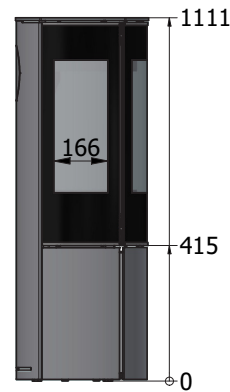
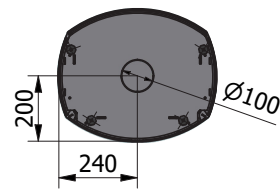
Without side glass
(glass door)



CARO 110 G



With side glass
(glass door)

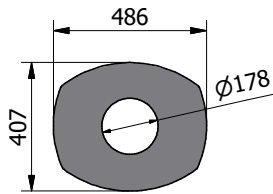
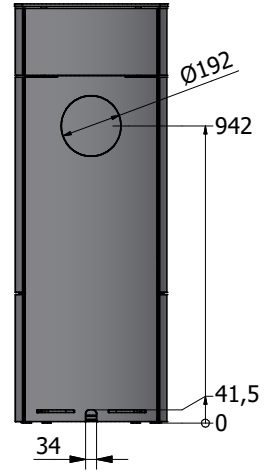
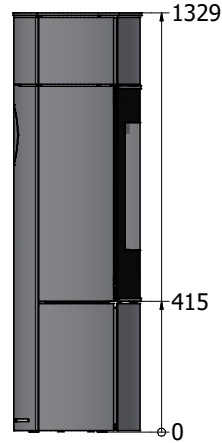
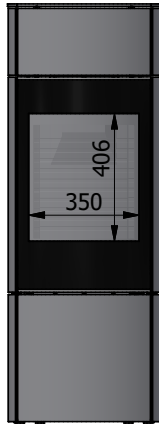
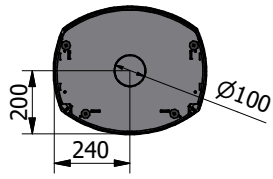


CARO 130 G

GB



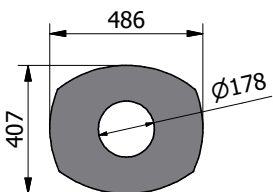
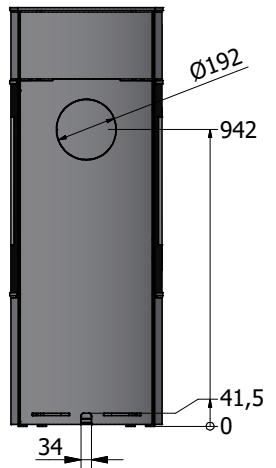
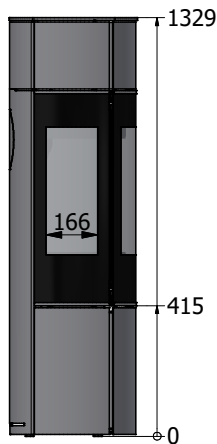
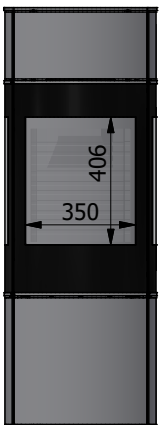
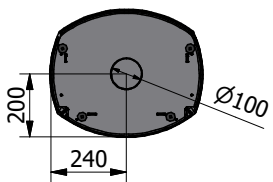
Without side glass
(glass door)



CARO 130 G



With side glass
(glass door)





Article number: 14-6510GB



5 708252 402676

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