



# MANUAL AND OPERATION INSTRUCTIONS FOR GAS SPACE HEATERS LEO SERIES



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Installation and operating instructions

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**Table of contents**

Introduction	4
Description of the device	4
Dimensions (mm)	7
Category, model and version of LEO gas fireplace.	9
Elements of the set	10
Safety	10
Installation of the appliance	11
INSTALLATION REQUIREMENTS.	12
Rules	14
Placing of the appliance	14
Ventilation grates in the housing	15
Connecting the device using a concentric chimney system	17
Runing a concentric flue and air duct through the side wall of the building - type C11:	22
Runing a concentric flue and air duct through the side wall of the building - type C31:	23
Runing a concentric flue and air duct through the side wall of the building - type C91:	23
Runing a concentric flue and air duct through the side wall of the building - type C61:	25
Exhaust gas restrictors	26
Installation of the control system	29
Receiver Antenna	30
Connecting the device to the gas installation	30
Control flame height	34
Gas outlet pressure regulation	34
Checking for leaks	35
Power connection	35
Installation of the device	36
Installation of decorative elements	36
First Start	39
Operation	39
Control	40
Technical parameters of the gas	49
Kraje przeznaczenia	<b>Błąd! Nie zdefiniowano zakładki.</b>
Service and maintenance of the device	53
Battery replacement	55
Possible problems and solutions	56
Failure codes	58
Environmental Protection	59
Terms of warranty	60

## **ATTENTION!!!**

Installation, leak testing and maintenance of the device may only be carried out by a qualified installer / service technician who has the right permissions for the region.

## ***Introduction***

The LEO series are series of a gas fired space heaters and each of them is a closed heating device fueled with combustible gas. This device has CE mark and uses high-class automation for gas control. The fireplace complies with strict European directives regarding safety, the environment and energy consumption.

The air supplied to the combustion chamber is taken from outside the residential building through the use of a concentric chimney system. This eliminates the phenomenon of cooling the room due to the lack of the need to mount a ventilation grille that provides the air flow necessary for the proper operation of the fireplace, as is the case with heating devices with an open combustion chamber. This type of solution provides the user with safety because it prevents the fumes from getting directly into the room in which the fireplace is located. Before installing the fireplace, read these instructions. The information contained in it will allow you to operate the device without any problems. The instructions should be kept for the entire lifetime of the fireplace.

## ***Description of the device***

The LEO gas space heater is designed for your safety and comfort and it is designed for supplying with natural gas, liquefied propane gas or liquefied propane-butane gas. The user can remotely control the fireplace using the remote control. Air supply to the combustion chamber and flue gas discharge is carried out by using a concentric chimney system. It is equipped with special elements protecting against uncontrolled outflow of gas from the installation. Regardless of the model, the method of its connection to the gas installation and the chimney system is identical. The LEO series has been designed for your safety and comfort. The user can remotely control the fireplace using the remote control. Air supply to the combustion chamber and flue gas discharge is carried out by using a concentric chimney system. The LEO series is equipped with special elements protecting against uncontrolled outflow of gas from the installation.



LEO/45/68



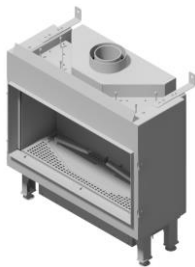
LEO/L/45/68



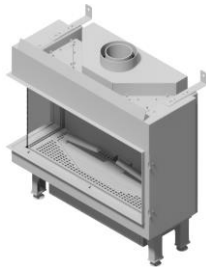
LEO/LP/45/68



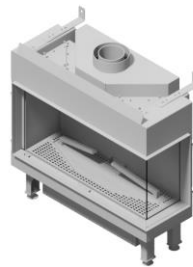
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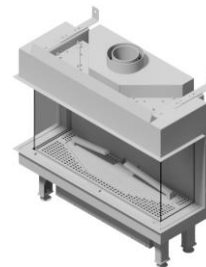
LEO/70



LEO/L/70



LEO/LP/70



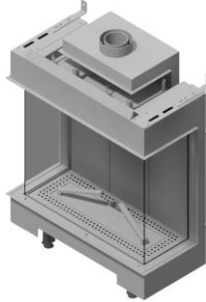
LEO/P/70



LEO/76/62



LEO/L/76/62



LEO/LP/76/62



LEO/P/76/62



LEO/100



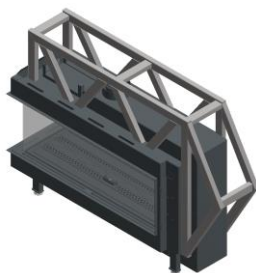
LEO/L/100



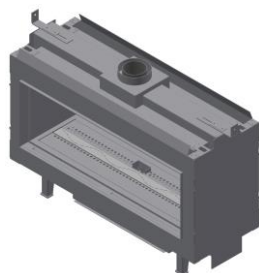
LEO/LP/100



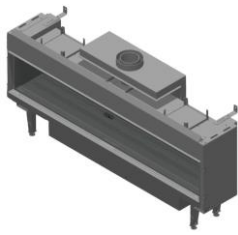
LEO/P/100



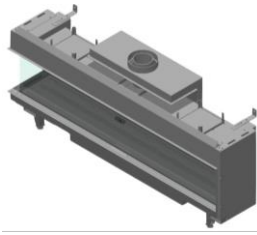
LEO/TUNEL/LP/100



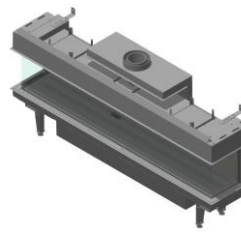
LEO/TUNEL/100



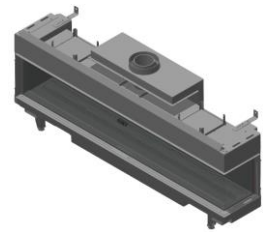
LEO/200



LEO/L/200



LEO/LP/200

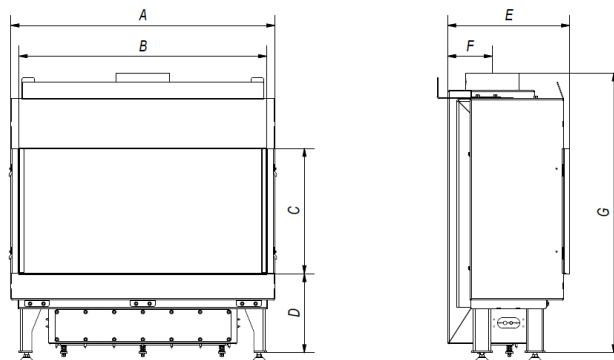


LEO/P/200

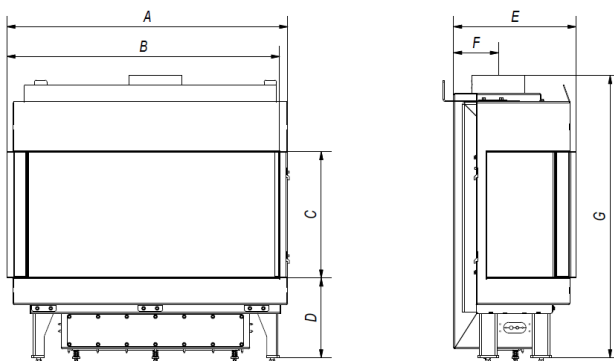
Fig. 1. LEO series gas fireplaces

**Dimensions (mm)**

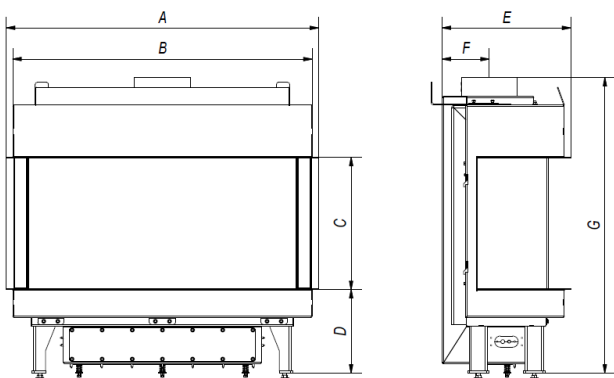
Model	A	B	C	D	E	F	G
LEO/45/68	502	454	684	224	448	185	1207
LEO/L/45/68	538	514	684	224	448	185	1207
LEO/LP/45/68	574	540	684	224	448	185	1207
LEO/P/45/68	538	514	684	224	448	185	1207
LEO/70	746	700	355	224	345	126	793
LEO/L/70	792	769	355	224	345	126	793
LEO/LP/70	838	804	355	224	345	126	793
LEO/P/70	792	769	355	224	345	126	793
LEO/76/62	812	764	624	224	448	185	1147
LEO/L/76/62	848	824	624	224	448	185	1147
LEO/LP/76/62	884	850	624	224	448	185	1147
LEO/P/76/62	848	824	624	224	448	185	1147
LEO/100	1065	1019	355	222,5	451	201	878,5
LEO/L/100	1140	1065,5	355	222,5	451	201	878,5
LEO/LP/100	1155	1121	355	222,5	451	201	878,5
LEO/P/100	1140	1065,5	355	222,5	451	201	878,5
LEO/TUNEL/LP/100	1448	1062	355	222,5	438	936	817
LEO/TUNEL/100	1129	989	355	258	426	565	819
LEO/200	2000	1952	357	221,5	453	185	879
LEO/L/200	2032	2008	357	221,5	453	185	879
LEO/LP/200	2076	2044	357	221,5	453	185	879
LEO/P/200	2032	2008	357	221,5	453	185	879



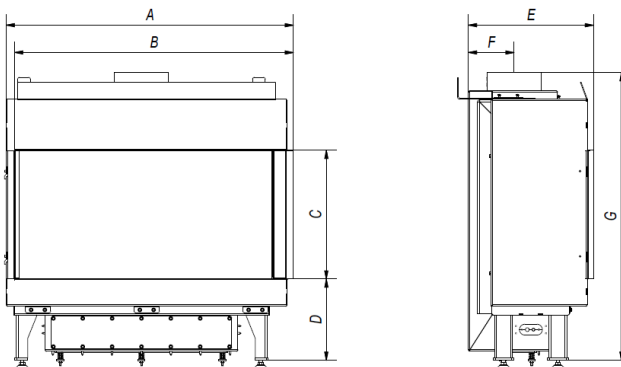
LEO



LEO/L



LEO/LP



LEO/P

Fig. 2. Dimensions of LEO series gas fireplaces



## Category, model and version of LEO gas fireplace.

Model and version		Category	Pressure and gas type		Destination Countries
LEO 100	<input type="checkbox"/>	FRONT <input type="checkbox"/>	$I_{3B/P}$ <input type="checkbox"/>	30 mbar, G30 <input type="checkbox"/>	BE, CY, DK, EE, FR, GB, GR, HU, HR, IT, LT, NL, NO, RO, SE, SI, SK, TR
				37 mbar, G30 <input type="checkbox"/>	PL
				50 mbar, G30 <input type="checkbox"/>	AT, CH, DE, SK
LEO 200	<input type="checkbox"/>	L <input type="checkbox"/>	$I_{3P}$ <input type="checkbox"/>	30 mbar, G31 <input type="checkbox"/>	FI, NL, RO
				37 mbar, G31 <input type="checkbox"/>	BE, CH, CZ, ES, FR, GB, GR, HR, IE, IT, LT, NL, PL, PT, SI, SK
LEO 70	<input type="checkbox"/>	P <input type="checkbox"/>	$I_{2H}$ <input type="checkbox"/>	20 mbar, G20 <input type="checkbox"/>	AT, CH, CY, CZ, DK, DE, EE, ES, FI, GB, GR, HR, IE, IT, LT, LU, LV, NO, PT, RO, SE, SI, SK, TR
LEO 76/62	<input type="checkbox"/>	LP <input type="checkbox"/>	$I_{2E}$ <input type="checkbox"/>	20 mbar, G20 <input type="checkbox"/>	DE, PL, RO
LEO 45/68	<input type="checkbox"/>	TUNEL <input type="checkbox"/>	$I_{2EK}$ <input type="checkbox"/>	20 mbar, G20 <input type="checkbox"/>	NL
				25 mbar, G25.3 <input type="checkbox"/>	NL
		TUNEL/LP <input type="checkbox"/>			

## **Elements of the set**

Please make sure that the kit of elements have not been damaged during transport. The inspection should be carried out in the presence of the installer. Before installing the fireplace insert, please familiarize yourself with all the elements provided with the device. If any damage or missing items are found, please contact customer service. The user receives in the set:

- ✓ Mertik Maxitrol GV60 controller.
- ✓ Mertik Maxitrol B6R receiver.
- ✓ 8-symbol B6R remote control.
- ✓ 8 mm compression fitting.
- ✓ 6 mm compression fitting.
- ✓ One-piece clamping fitting 6 mm.
- ✓ 3/8 "cap - 2 pcs
- ✓ G60-ZUS09 chopper block.
- ✓ G30-ZP2M control burner block.
- ✓ Control burner nozzle - NG (designation 27-2) / LPG (designation 22)
- ✓ Gasket for the control burner block.
- ✓ G30-ZPT1500A thermocouple.
- ✓ The spark magnet cable.
- ✓ Wires connecting the chopper block to the receiver.
- ✓ 8-wire cable connecting the gas controller with the receiver.
- ✓ 1/2 "reduction plug for 3/8".
- ✓ Set of decorative stones.
- ✓ Gas connection hoses 6 and 8 mm in diameter.
- ✓ Distribution box.
- ✓ G60-ZBE power supply module (Option).

## **Safety**

Carefully read the following information:

- ✓ Connection of the fireplace to the gas installation and its maintenance may only be carried out by a qualified fitter or service technician for heating gas appliances.
- ✓ If the control flame extinguishes, wait for a minimum of five minutes before the next attempt to light it up.
- ✓ If the device does not start up with the first 5 attempts, wait 5 minutes before trying again. It is strictly forbidden to make any modifications to the design of the fireplace.
- ✓ Elements of the gas control system must not be exposed to moisture.
- ✓ It is forbidden to start the device without the glass pane installed.
- ✓ Do not touch the hot parts of the fireplace, in particular the glass.
- ✓ Children or other oblivious people in the vicinity of the working device should not remain unattended.
- ✓ It is forbidden to place decorative elements for the lining of the combustion chamber in front of the control flame.

- ✓ Do not place flammable materials near the fireplace.
- ✓ It is forbidden to place flammable materials in the combustion chamber.
- ✓ If you feel a gas leak, do not start the device. Stop the gas supply as soon as possible, ventilate the room in which the fireplace is located and contact a service technician.
- ✓ Broken glass should be replaced immediately. Operation of the appliance with broken or removed glass is strictly prohibited.
- ✓ In case of improper functioning of the device, shut off the gas supply and contact a service technician.

### **PLEASE NOTE !!!**

**During operation, the device heats up and it is essential to avoid touching any surface of the device in normal working conditions, including the windscreen, side windows, front and side surfaces (called working surfaces) of the body that may be outside the device's body. In the case of installation of the device in places where contact with the device may be particularly vulnerable, ie infirm persons, children or other persons requiring special attention, it is necessary to protect the device in a way that prevents contact with the working device mentioned above.**

### ***Installation of the appliance***

The fireplace is equipped with elements protecting against uncontrolled outflow of gas from the main burner. Before connecting the device, read all connection diagrams in the current chapter. The gas cartridge is adapted to connect a special concentric system that allows simultaneous supply of the fireplace in the air and flue gas discharge outside the building. In order to ensure correct operation of the device, the assembly of the fireplace can only be carried out by a person with appropriate permissions. Before allowing the gas cartridge for use, the installer should:

- ✓ Carry out leak tests for gas connections made.
- ✓ Check the correct connection of individual system components.
- ✓ Check the correct connection of the chimney insert.
- ✓ Make a trial firing in the cartridge.
- ✓ Check the correct operation of all system components and system security.

## INSTALLATION REQUIREMENTS.

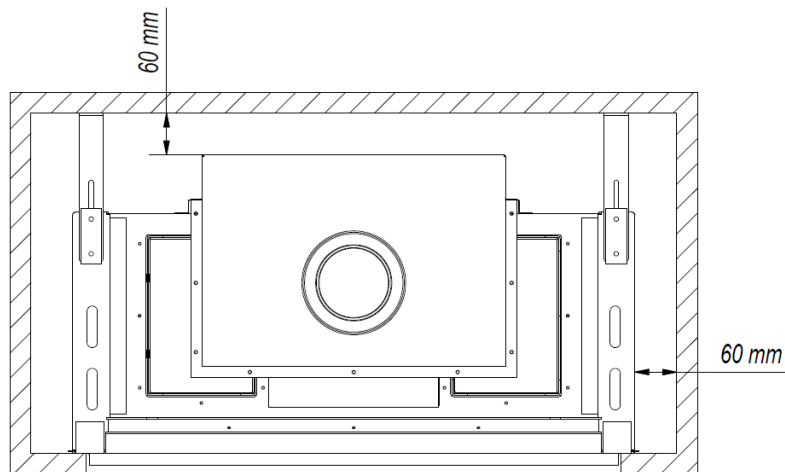


Fig. 3. Minimum distances of the gas cartridge from non-combustible housing elements

The distances indicated above are the minimum distances from a non-flammable housing, unless another provision states otherwise.

The main reason for fires associated with the fireplace is the lack of maintenance of the required distances (free air space) from the walls of the housing. It is very important that this fireplace and ventilation system is installed in accordance with these instructions.

### **WARNING:**

There is a great risk of fire hazard if the gaps specified in this manual are not observed.

The device is designed and approved for use with a non-flammable housing as shown in the diagrams with an interval of min. 6 cm on the back and sides of the device, if it is not a version with side glazing. To adapt to different thicknesses of bodywork finishing materials, please follow the instructions below.

The material used for the installation must not transfer weight to the device or be connected to the device in any way. They must not cover any part of the removable glass panel or control system.

The total thickness of the non-flammable building material must be determined so that the surface can be flush with the front of the device. The total thickness of the cladding can be from 15 mm to 30 mm.

**WARNING:** Consider installation because there must be no flammable materials at a distance of at least 60 cm from the device.

**Inspection doors** - are required in all LEO gas fireplace inserts. They allow efficient and convenient access to the receiver and the control valve of the device, which are necessary for the proper operation of the device. The inspection door has been designed and should be installed in a place that does not disturb the aesthetics of the finish of the fireplace or the surrounding living space. The service technician should also service the gas controls of the device passing through the device itself. This procedure requires removing the glass panels, removing the decorative elements of

the combustion chamber, the search located on the base of the burner, burner and burner base from the device. The service technician will reinstall all these components after completing service.

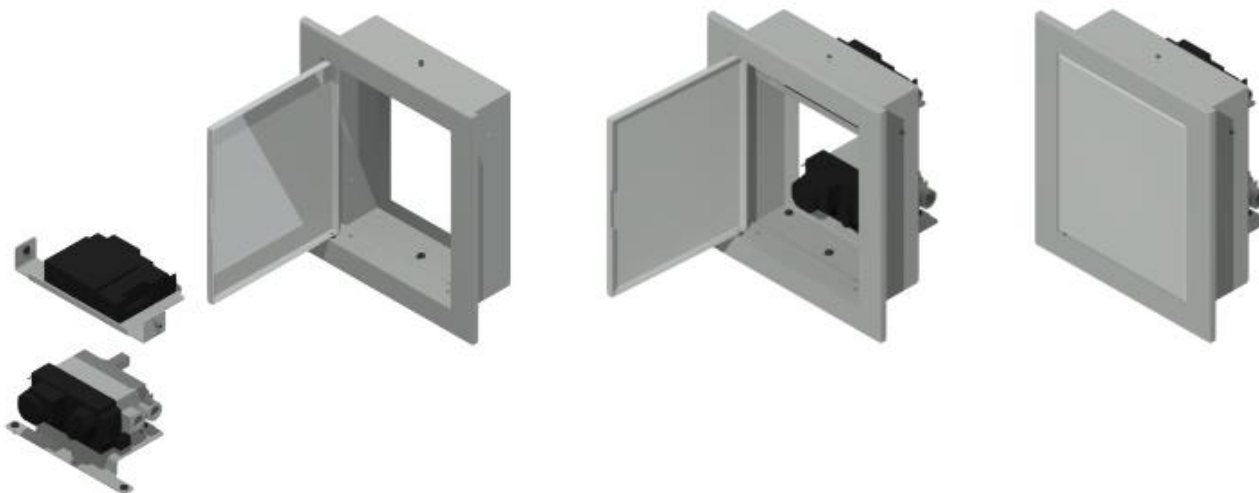


Fig. 4. Installation of the gas controller and the receiver in the inspection door

#### Requirement for the installation of an inspection door

If an inspection box is installed (it can be installed, depending on the needs, on the left or right of the body), at least 1 m of free space should be left for service purposes.

NOTE: the inspection door should not be installed higher than 25 cm above floor level due to extreme heat inside the building.

Fireplace sellers / installers should consult their clients, their architects and / or interior designers about the pros and cons of each service option to identify critical installation requirements that could prevent or hinder servicing.

**Ventilation grates** - are required for all LEO series models and must be considered when designing the housing. This allows the heat exchange accumulated inside the fireplace housing to be released into the room, which also helps to keep the fireplace walls and the housing cool.

One of the grilles must be at the bottom and the other at the top of the fireplace casing, so we recommend that the upper one is placed a minimum of 15 cm and a maximum of 50 cm below the ceiling in the fireplace, and the lower one a minimum of 5 cm above the floor but not higher than 10 cm below bottom edge of the cover. It can be placed on the front, sides or back of the fireplace casing, as long as it is directed inwards and not outwards.

#### The minimum active field required for the cross-section of ventilation grates in the series is:

	LEO 100	LEO 200	LEO 70	LEO 76/62	LEO 45/68
Inlet grate	800 cm <sup>2</sup>	1300 cm <sup>2</sup>	500 cm <sup>2</sup>	700 cm <sup>2</sup>	500 cm <sup>2</sup>
Outlet grate	1000 cm <sup>2</sup>	1600 cm <sup>2</sup>	600 cm <sup>2</sup>	900 cm <sup>2</sup>	600 cm <sup>2</sup>

These are the minimum required cross-sectional areas of the grates, but there are no contraindications to make them larger. Ventilation grilles can be in the form of barrels or grille with blinds. If you use blinds, make sure that the cross-sectional area of the free space in between the grille with the blinds is equal to or greater than the minimum required for the model.

**Adjustable feet** - All fireplaces in the LEO series are standard equipped with leveling legs, which can change the height of the device. If necessary, you can also build a platform to raise the firebox higher. Despite this solution, remember that the legs cannot be removed.



Fig. 5. Leveling foot and adjustable clamping handle

**Housing requirements** - This fireplace requires non-combustible material to complete the building. The flanges on the front surface of the fireplace have a facing thickness of 15 mm.

**Buildings made of materials thicker than 15 mm** - If the cladding material is more than 15 mm thick (for example: brick or river stone), install the body at the junction with the masking flange. It is also possible to make a mask with a wider collar on request. Contact an authorized reseller for additional information.

**Hearth protection requirements** - This fireplace requires non-flammable floor protection made of tiles, marble, bricks or other non-flammable material at least 30 mm thick, which does not protrude above the base of the device.

## **Rules**

The device should be installed in accordance with local regulations and standards in force in the given country or region. Connection to chimney flues, wall and roof passages as well as all types of elements used for fireplace installation should be made based on applicable building law standards. The fireplace insert has been tested based on the *EN-613 European Standard for Gas-fired convection room heaters*.

## **Placing of the appliance**

Before connecting the device to the gas and chimney installation, you should carefully choose the place of its installation. The insert should be located so that the air-flue gas system has the smallest number of bends. This will guarantee an appropriate chimney draft. It is also important that after connecting the insert to the gas installation, the flexible connection pipes are not exposed to excessive twisting. The fireplace should be at a minimum distance.

60 mm from non-flammable casing elements (Fig. 3). The temperature of the walls exposed to direct fireplace must not be higher than 80 ° C. Under no circumstances should the device be placed near flammable materials such as wooden furniture, rugs

or curtains. Due to the possibility of ignition, it is forbidden to dry clothes, towels, etc. near the gas insert. The fireplace should be installed on a stable non-flammable surface. The gas insert is equipped with special feet with adjustable height and two adjustable mounting brackets enabling the device to be attached to the wall. It is forbidden to install the gas insert on the back or side. Only vertical mounting is allowed.

### ***Ventilation grates in the housing***

Installation of the device is only allowed in a non-flammable housing as shown in the diagrams with a 60 mm spacing at the back and sides of the device, only where there is no glazing. In the case of side glazing, it is allowed to mount the building walls to the front of the device's cover. To adapt to different thicknesses and finishes of the furnace materials, follow the instructions below.

Buildings and other decorative elements of the body can be installed on the surface of the device, provided that the minimum spacing between the device and non-combustible material is kept in accordance with the requirements contained in the instructions and provided that they are non-combustible. The material surrounding the device (body) must not transfer weight to the device or be connected to the device in any way. They must not cover the removable glass panel or control system in any way, or hinder their removal or service.

The total thickness of the non-combustible cladding must be determined to allow the surface to be flush with the front of the device. The total thickness of the cladding can be from 15 mm to 30 mm.

**WARNING:** You should always consider installation very carefully before taking any steps to install the device, since there must be no flammable materials at a distance of at least 100 cm from this fireplace.

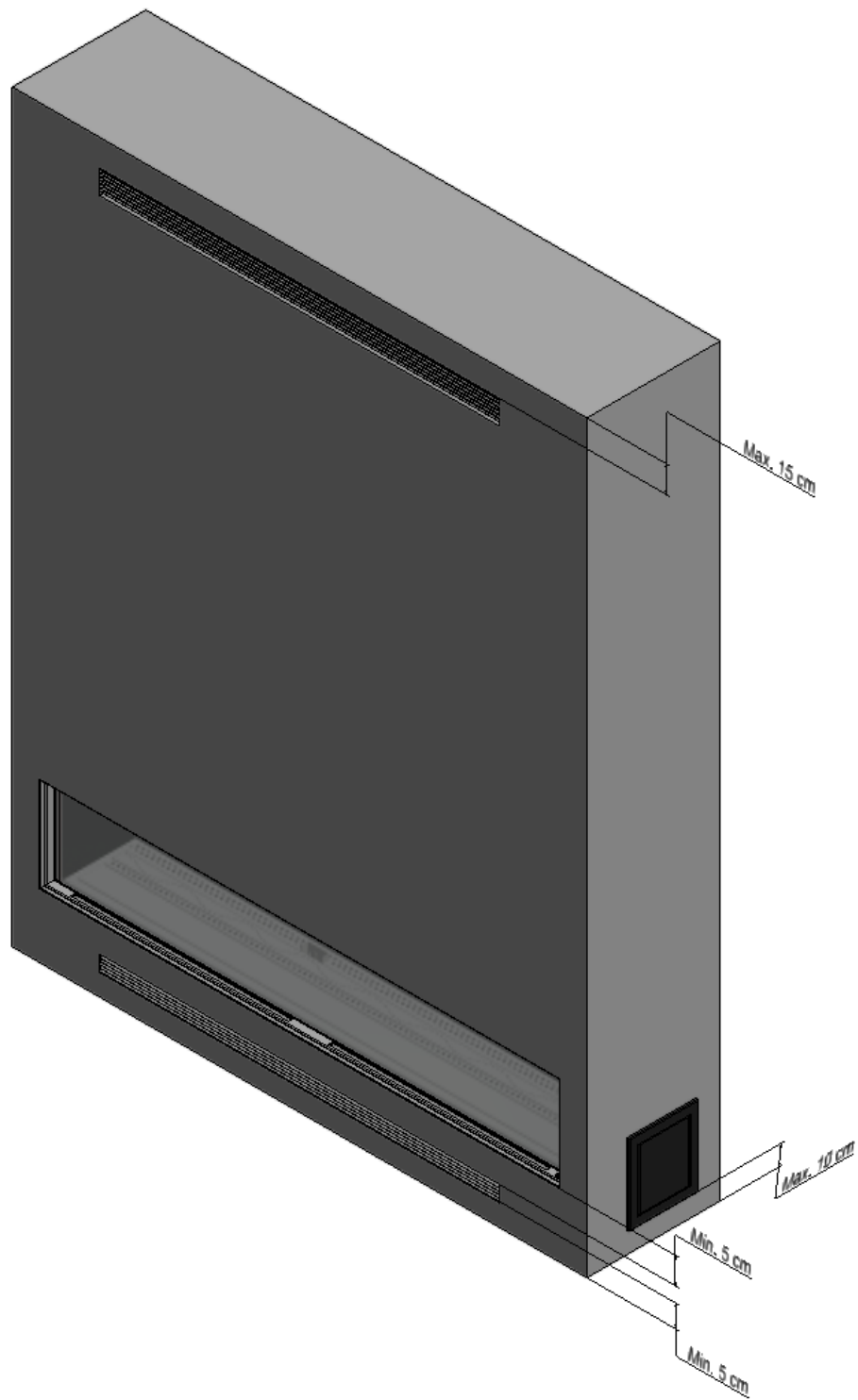


Fig. 6. Diagram showing minimum requirements for the location of ventilation grilles and inspection doors.



## Connecting the device using a concentric chimney system

Coaxial ducts can be led through the wall or roof of the building. The building regulations in force in the given region must be observed. Remember to check the flue gas pipe with the terminal for blockage. If there is a risk of blockage of the duct or when the duct is blocked in such a way as to prevent the correct flow of air and / or exhaust gas and when the duct is blocked preventing easy removal of the obstruction, it is imperative to call the installer or another person with appropriate authorization to remove blockages of the flue and / or flue pipe terminal. This is a prerequisite for proper operation of the heater.

Gas cartridges are adapted for a special combustion air supply. The chimney system used to connect the LEO 100, LEO 45/68 and LEO 76/62 series is based on elements consisting of two coaxial ducts with an external diameter of 150 mm responsible for supplying air to the combustion chamber and an internal diameter of 100 mm for flue gas evacuation. The LEO 200 series works with an analogous coaxial system, of which the inner conductor has a diameter of 130 mm, while the outer one has 200 mm. In both cases, the coaxial cable should be terminated with a special cap enabling the proper functioning of the system. All elements of the set should have the required approvals and CE certificates. The LEO gas heaters series can cooperate only with the following concentric ones:

NOTE: The use of one of the following flue systems for installation is mandatory (only these three systems are approved for installation with your device):

- DARCO concentric system model SGSP 100/150. This system is available in online stores and local stores, which can be found at official website [www.darco.com.pl](http://www.darco.com.pl)
- POUJOLET concentric system model BI-GAS 100/150. This system is available in online stores and local stores, which can be found at official website [www.poujoulet.pl](http://www.poujoulet.pl)
- JEREMIAS concentric system model TWIN-GAS 100/150. This system is available in online stores and local stores, which can be found at official website [www.jeremias.pl](http://www.jeremias.pl)

In the event of condensation in the chimney flue, the installer should use a drainage element (droplet separator). Each elbow used for the exhaust air exhaust system is counted as a meter length and this should be taken into account when calculating the total length of the exhaust air duct. All concentric system channels cannot be isolated. When routing the chimney through the external wall or roof of the building:

- Install the system in accordance with applicable regulations, taking into account any difficulties associated with wind pressure on the terminal.
- In the case of a flammable wall, ensure an additional distance of 5 cm between the wall and the outer surface of the coaxial pipe. Fill in the remaining space with thermal insulation, which additionally prevents moisture from entering the building.
- If the flue pipe is close to flammable walls, secure them with a minimum of 25 cm thermal insulation.
- Begin installation of the concentric system by installing a one-meter vertical section at the outlet of the fireplace (minimum height).
- Connect the individual elements of the system using special straps to ensure proper tightness.
- If necessary, stabilize the individual components of the concentric system using wall brackets.
- The coaxial cable must be terminated with a windproof terminal. A special horizontal terminal is used when leading through a wall (type C11), while a vertical terminal (type C31) is used when leading through a roof.

Unless otherwise provided by local regulations, the horizontal or vertical terminal should be installed according to the following guidelines.

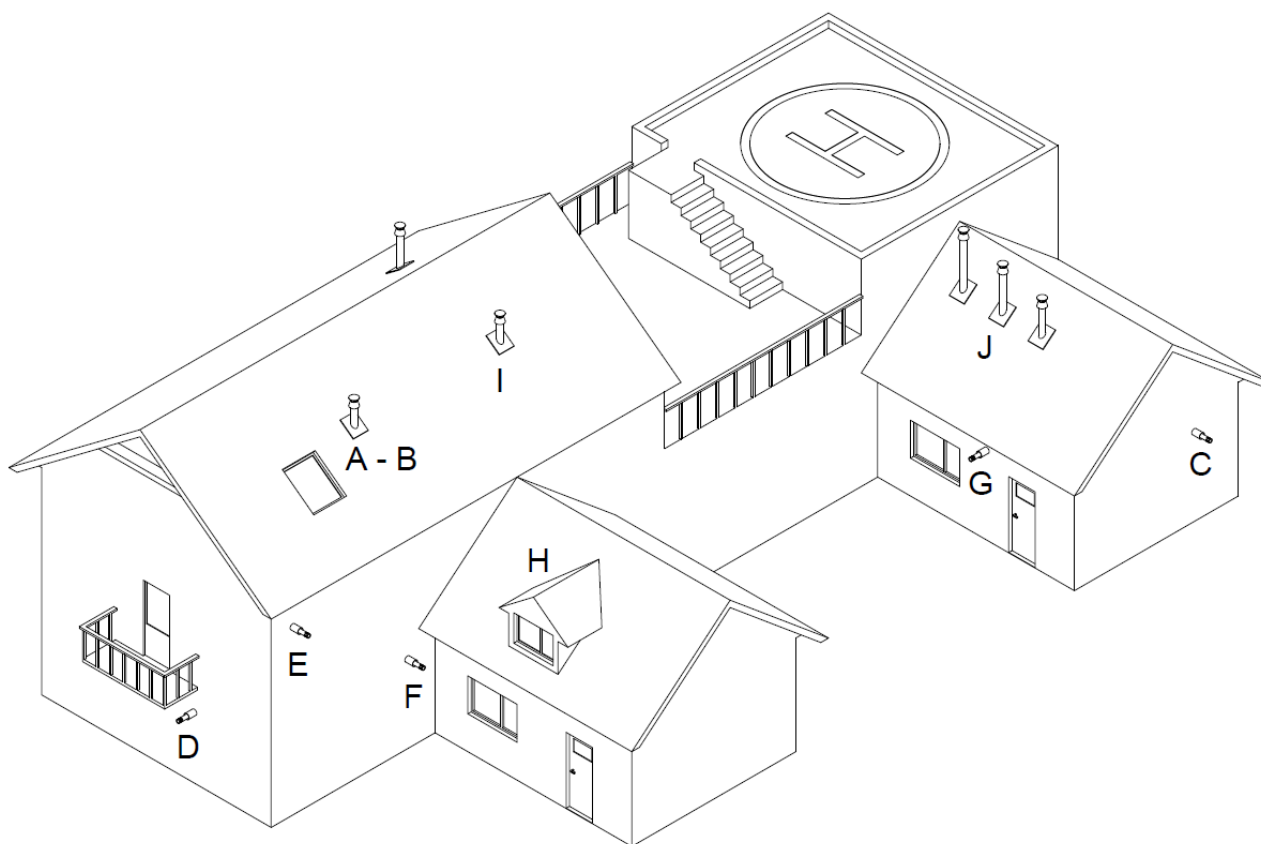
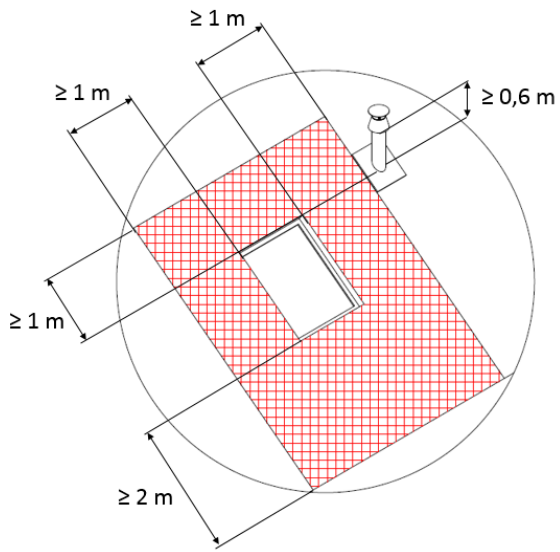


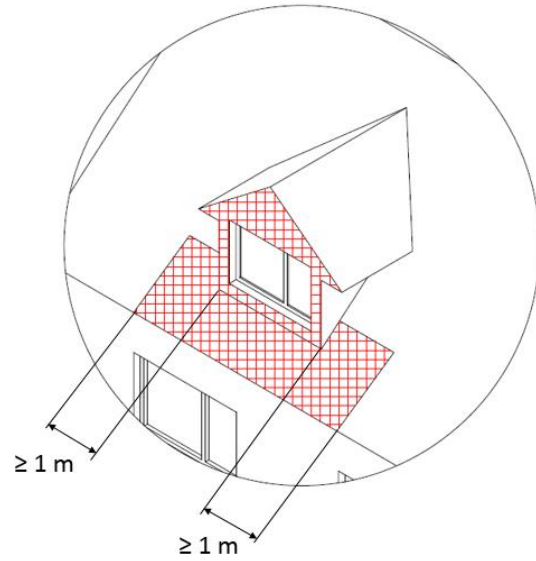
Fig. 7. Possible variants of the concentric air exhaust system output for the LEO series devices

In the case of a chimney system outlet near a roof window (**A - B**), the air intake must be installed a minimum of 0.6 m above the top of the window. In addition, a distance of 1 m - sides / top and 2 m - bottom should be kept between the chimney system and the edge of the roof window. In the case of a standard roof-mounted window (**H**), the terminal may not be installed below its lower edge and at a distance of at least 1 m from its sides. Other requirements are presented below.

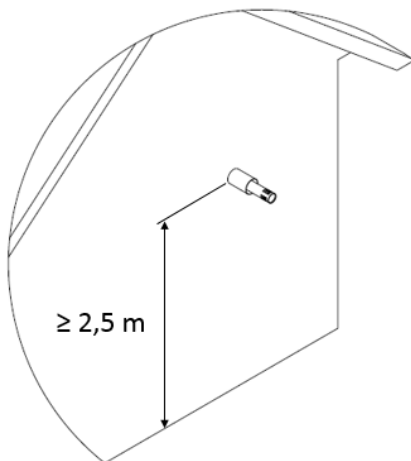
**A - B** Roof window



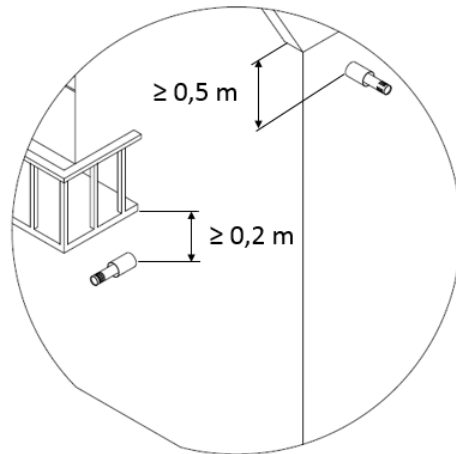
**H** Roof window



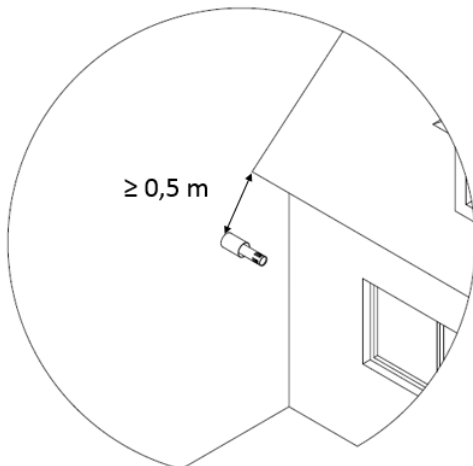
**C** Height above ground level



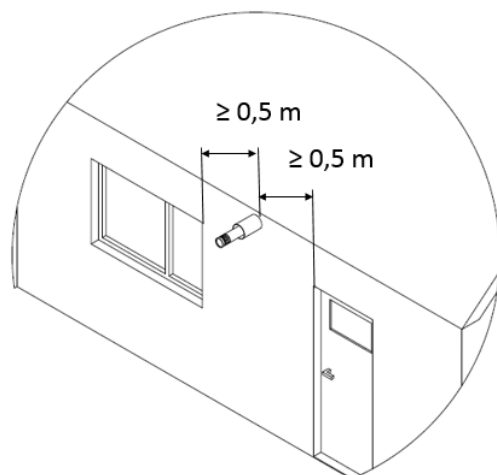
**D - E** Distance below the balcony and from the roof edge



**F** Distance from obscuring breaks

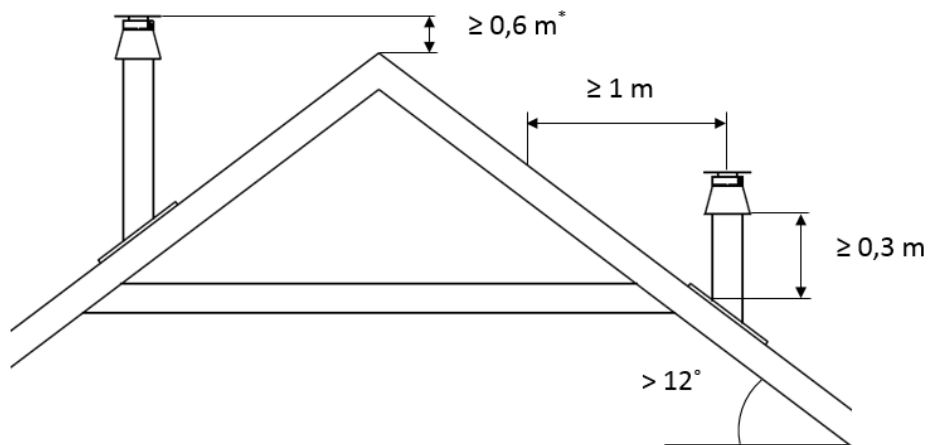


**G** Distance from doors and windows



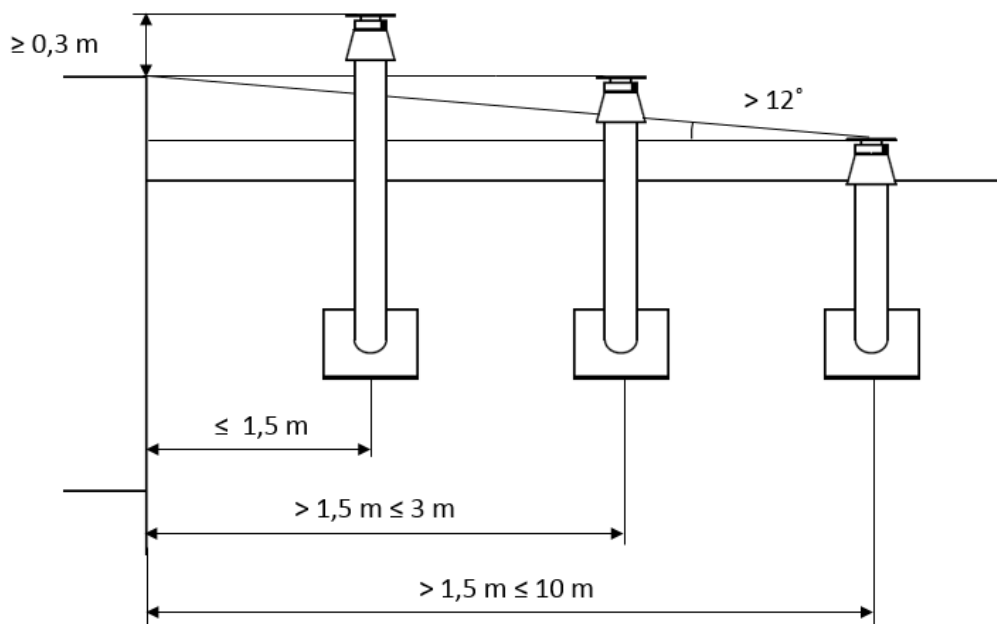
It is allowed to lead the horizontal terminal below 2.5 m above ground level, but not less than 0.5 m if there is no playground or other recreational places within 8 m. The distance between the cable outlets should not be less than 3 m, and the distance of these outlets from the nearest edge of the opening windows / doors (**G**) and screening projections (**F**) not less than 0.5 m (**C** and **G**). A distance of at least 6 m should be kept between the flue gas outlet and smoke outlet and the nearest edge of the adult tree crown. Below is how the vertical terminal is positioned relative to the ridge (**I**) and the obstacle interfering with air flow (**J**).

**I** Distance from the ridge



\* for a roof covered with straw  $\geq 0.8$  m

**J** Distance from an obstacle



## Running a concentric flue and air duct through the side wall of the building - type C11:

The discharge of the flue and air duct through the building wall should begin with the use of a 1 meter long vertical section. The maximum length of the straight section of the air-fuel pipe run horizontally is 3 meters. It is allowed to use only one 90 ° elbow (Fig. 8). All variant possible for this type of venting system are described above.

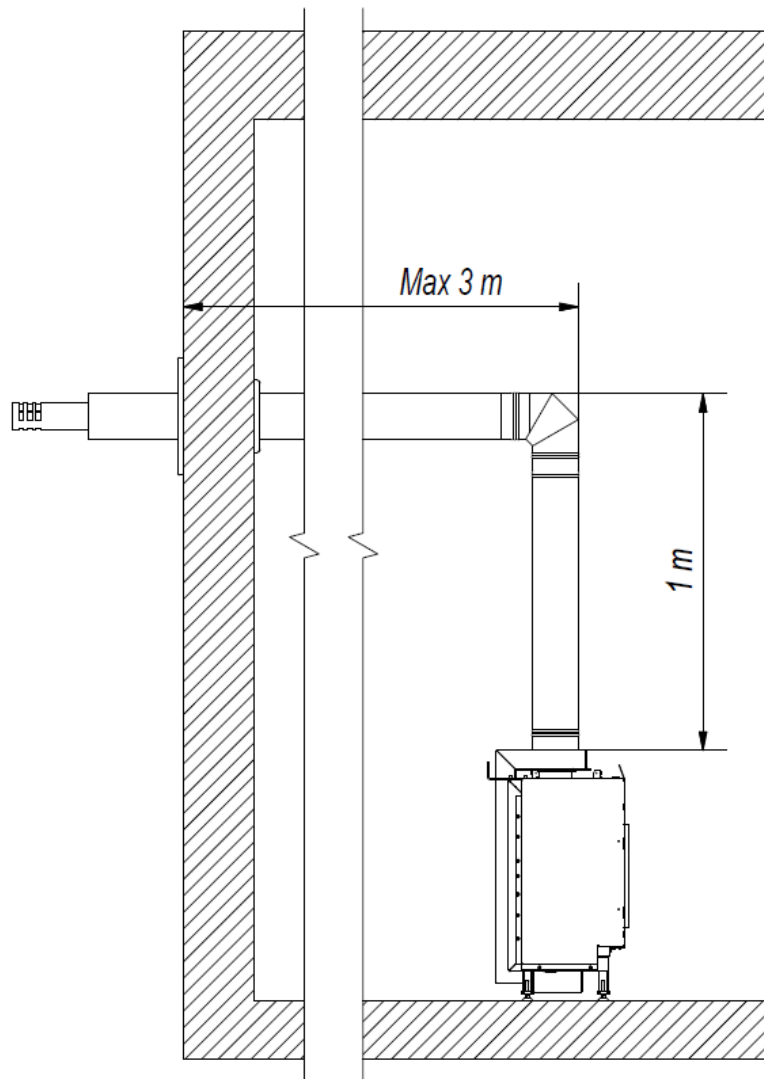


Fig. 8. The way of pulling out a concentric chimney system through the wall

### Running a concentric flue and air duct through the side wall of the building - type C31:

Moving through the roof can be carried directly vertically. The minimum length of the vertical section without a knee is 1 meter, while the maximum length may not exceed 10.0 meters (Figure 9). This is possible to use two 45 degrees elbows in such installation. All variant possible for this type of venting system are described above.

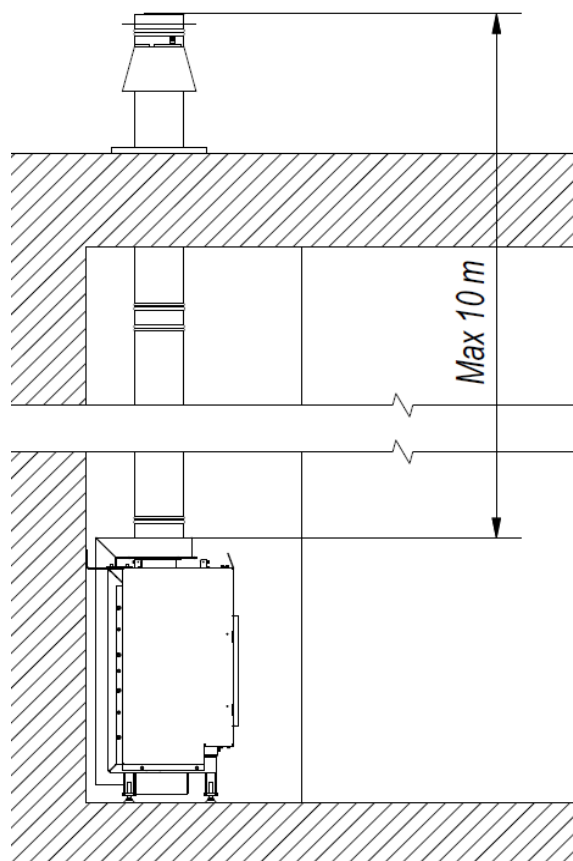


Fig. 9. Leading concentric chimney system through the roof

### Running a concentric flue and air duct through the side wall of the building - type C91:

It is also allowed to install the device using the existing chimney. It is an installation analogous to type C31, but with the use of elements of an existing chimney installation. However, special requirements must be met for this purpose:

- ✓ Piping a pipe with 100 mm diameter for the discharge of flue gas through the existing chimney to the terminal at the end of the chimney. The space inside the existing chimney serves only to provide combustion air.
- ✓ The cross section of the existing chimney must be not less than 150 x 150 mm.
- ✓ The length of the chimney should not exceed 3 m.
- ✓ The existing chimney should be clean and easy to maintain.
- ✓ The existing chimney should be unobstructed and sealed.

- ✓ A rosette must be used at the transition of the concentric system through the wall.
- ✓ The chimney output of the existing chimney in connection with the terminal should be protected against flooding or blocking, and the terminal installed in a way that guarantees its correct operation.

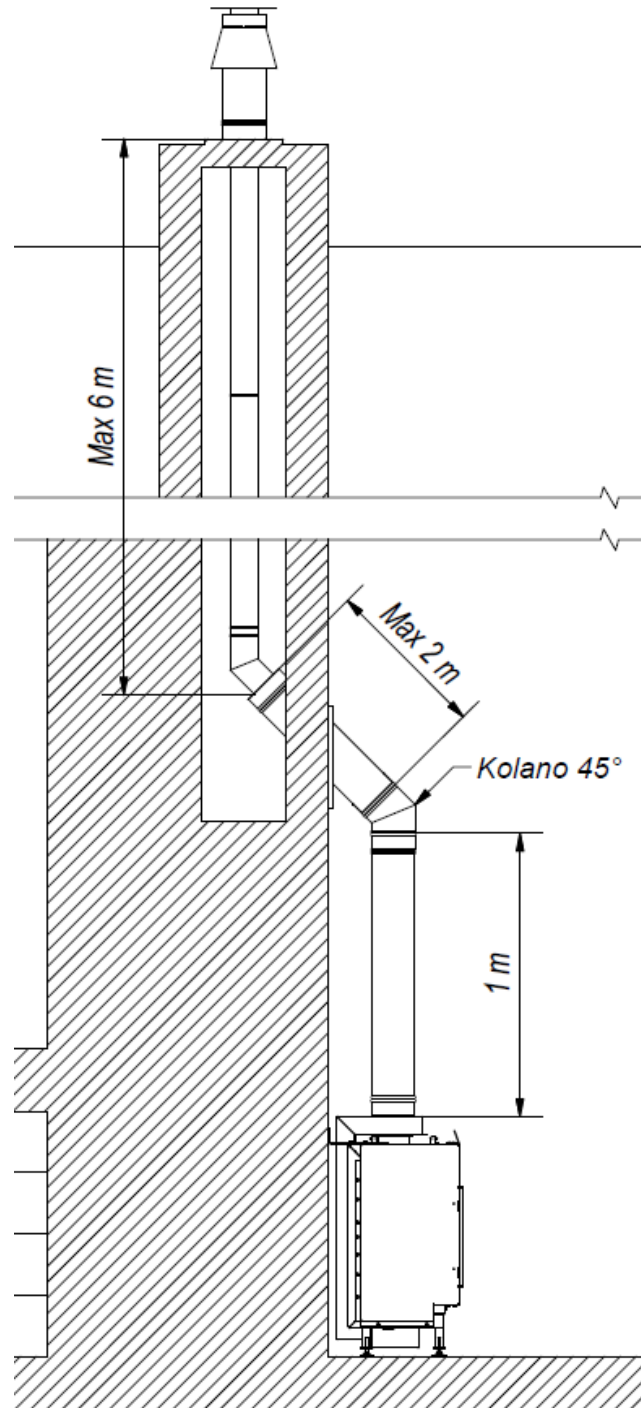


Fig. 10. The way of installing the device using the existing chimney



**Running a concentric flue and air duct through the side wall of the building - type C61:**

It is allowed to install the device with another concentric system, if it was not supplied with the device, provided that it is independently certified for use with devices burning gaseous fuel with a closed combustion chamber and meets the installation requirements of this manual, including detailed conditions for the selected type and the requirements of the construction law.

**Maximum lengths of the concentric flue gas system**

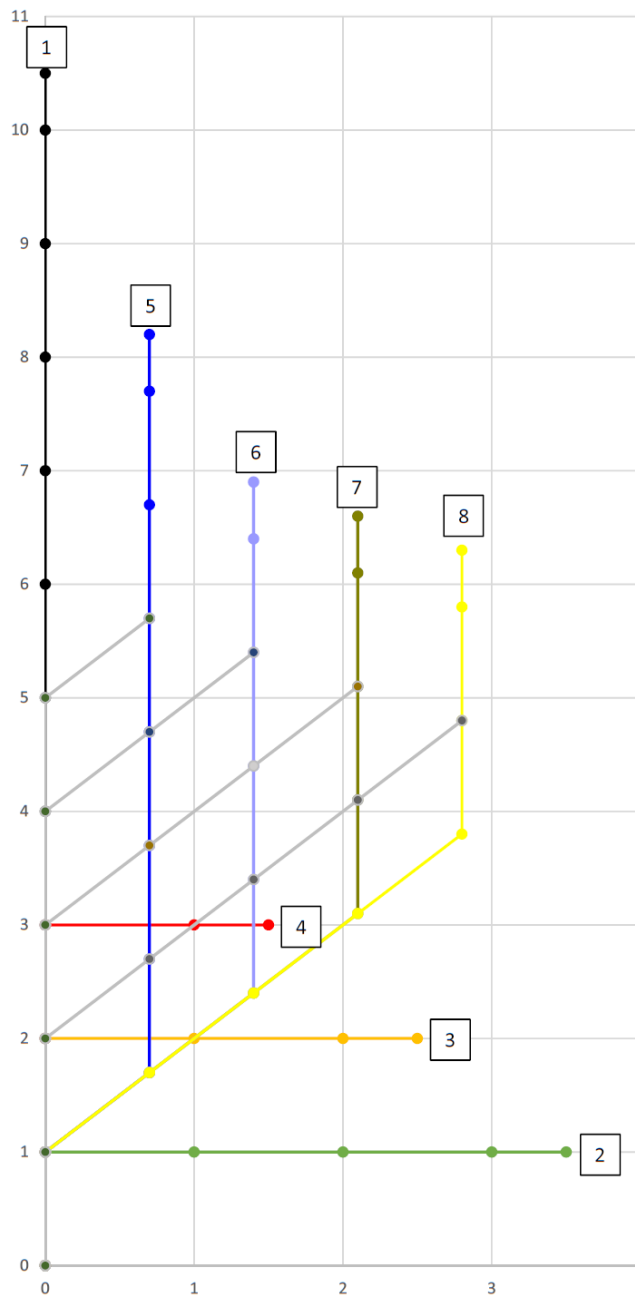


Fig. 11. LEO Series - Scheme of all allowed concentric flue system runs.

The diagram above shows all 8 variants of the exhaust air system for the entire LEO series. The gray color on the chart is an auxiliary color. Point 0.0 means the beginning of the air-flue gas system (exhaust outlet on the device).

### ***Exhaust gas restrictors***

In LEO series gas fireplaces it is necessary to adapt the exhaust gas restrictors (covers / deflectors) depending on the way the air-flue system is routed.

#### **LEO45/68, LEO76/62**

If a vertical terminal is used, the LEO45 / 68 and LEO76 / 62 devices do not require modification. The use of a horizontal terminal forces the fireplace installer to disassemble the deflector system according to fig. 12. In case of disassembly of the deflectors, it is necessary to reinstall the screws in the body.

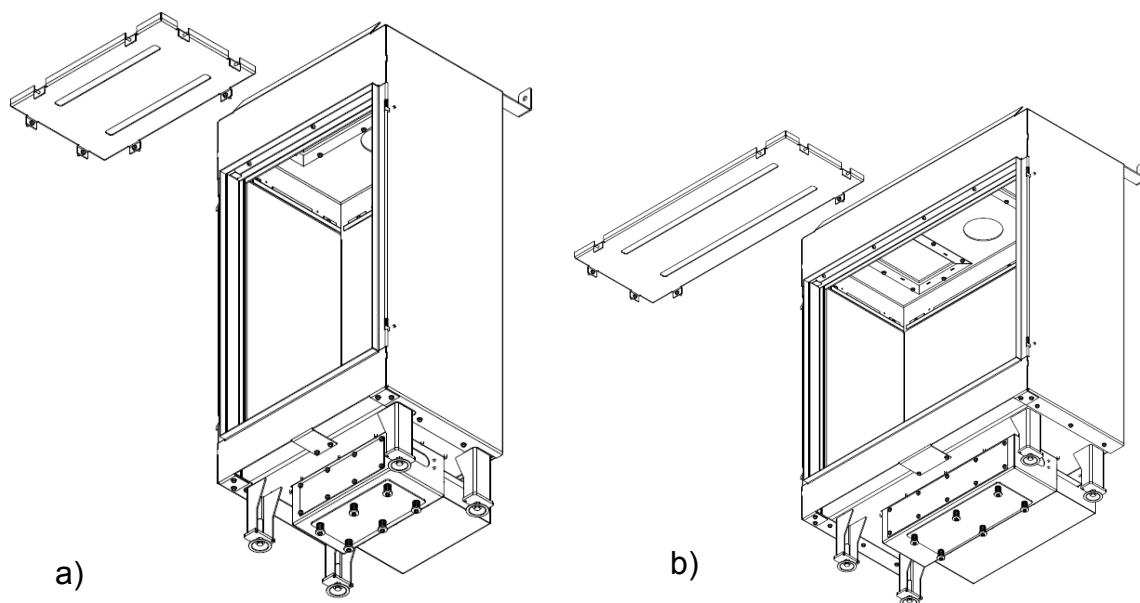


Fig. 12. Disassembly of deflectors: a) LEO45 / 68, b) LEO76 / 62

#### **LEO100, LEO200**

If a vertical terminal is used, the LEO100 and LEO200 series devices do not require modification. The use of a horizontal terminal forces the fireplace installer to modify the deflector system. The deflectors in the deflector system must be removed as per fig. 13.

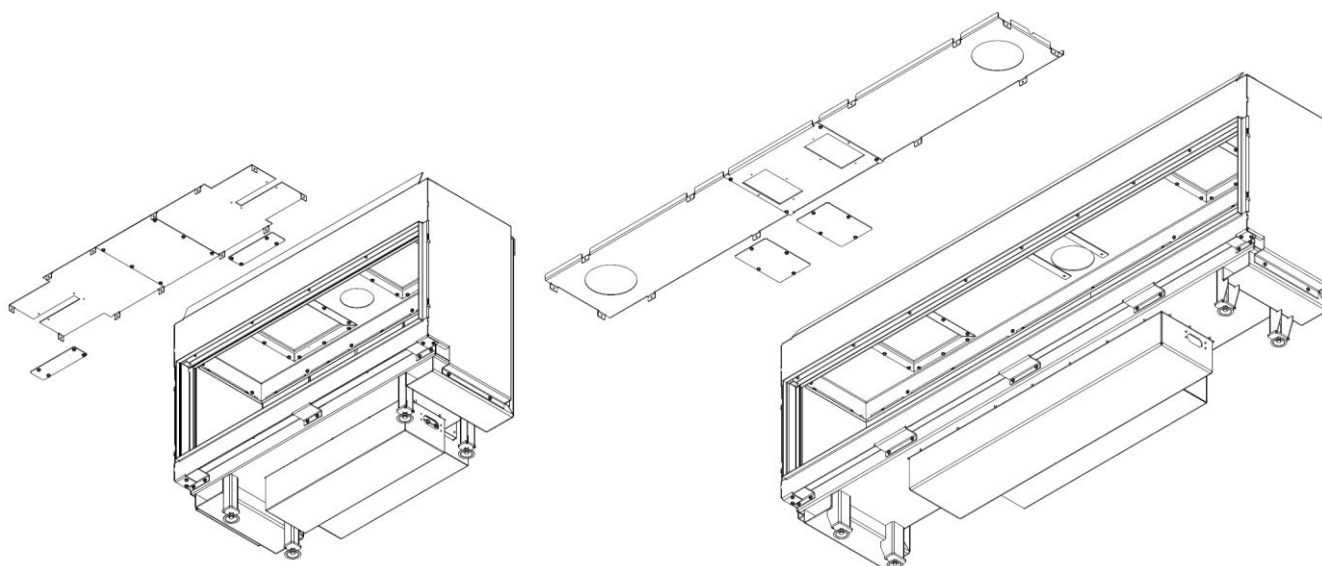


Fig. 13. Disassembly of LEO100 and LEO200 deflectors

### LEO70

In the LEO70 series, depending on how the chimney system is routed, the deflector assembly must be adapted by using appropriate covers (Fig. 14). In each diaphragm there are special cuts enabling breaking of its individual elements.

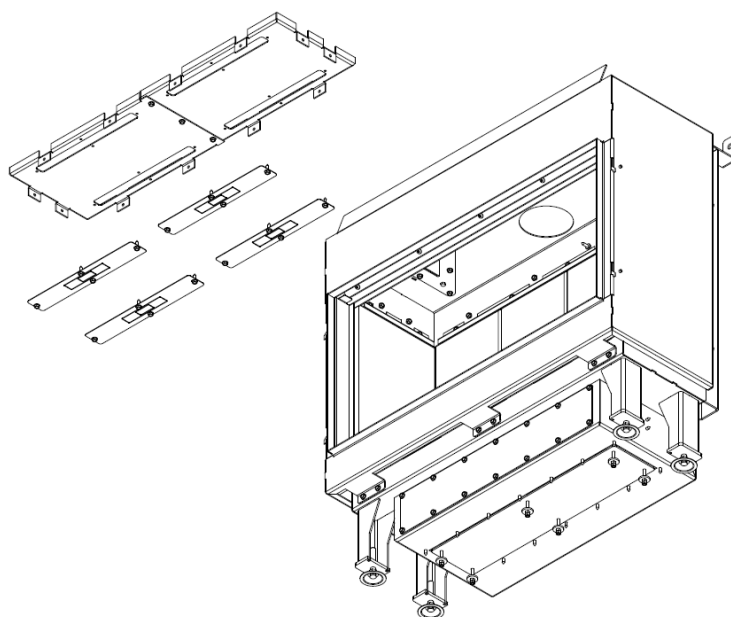
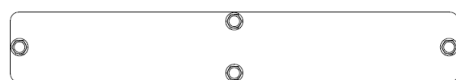


Fig. 14. LEO70 series - deflectors with shutters

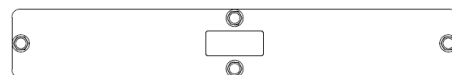
In order to select the correct type of barrier, the system length should be properly calculated and the flue outlet variant should be selected in accordance with the diagram presented in Fig. 11. The number and length of a given variant defines the type of apertures used in accordance with Table 1. Each elbow used in the flue gas installation should be treated as 1 m section.

Table 1. LEO70 - Type of shutters used in deflectors depending on how the air-flue system is routed

Variant	1 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m	9 m	10 m
1	Type 3	Type 3	Type 3	Type 2	Type 2	Type 1	Type 1	Type 1	Type 1	Type 1
2			Type 3	Type 4	Type 4					
3				Type 3	Type 4					
4					Type 3					
5				Type 3	Type 3	Type 2	Type 2	Type 1	Type 1	Type 1
6					Type 3	Type 3	Type 2	Type 2	Type 1	
7						Type 3	Type 3	Type 2	Type 1	
8							Type 3	Type 2	Type 2	



Type 1



Type 2



Type 3

No shutter

Type 4

Fig. 15. LEO70 - Variants of screens mounted in deflectors

*For example, if your air / flue system leads 4 m upwards, then laterally through the knee 45 degrees to the side, another 2 m in the direction of the knee, then after another 45 degree up knee with a vertical terminal, adjust the deflector in the device with type 2 shutters.*

*Calculation: 4 m up + 45 degree bend (1 m) + 2 m + 45 degree bend (1 m) = 8 and color variant 6. According to Table 1, this means the use of type 2 diaphragm deflectors.*

## Installation of the control system

### ATTENTION!!!

The device together with the gas control system can only be installed in the factory settings. Do not install the battery at this stage. Connecting a power source beforehand can damage the system electronics.

### ATTENTION!!!

Individual elements of the gas control system should be connected in accordance with the diagrams in this manual.

The standard gas control system includes the Mertik Maxitrol GV60 controller and the B6R-R8U receiver from which an antenna is provided to operate the device using a remote control. Remote gas control components should be installed in the distribution box. The distribution box should be installed in an accessible place for possible repair or replacement of individual system components. Exposing system electronics to temperatures above 60 ° C will cause irreparable damage. Elements of the control system should be installed in a place where the temperature does not exceed 25 ° C. The maximum distance between the distribution box and the gas insert is determined by the length of the cables connecting the GV60 gas controller to the electrode and thermocouple. Do not extend the cables supplied with the device, as this may affect the control system malfunction. Remember not to place the ignition cable too close to metal parts. Contact of the ignition cable with the receiver casing may cause its damage. System components must not be exposed to moisture, dust or corrosive agents. The LEO fireplace insert series can only work with the gas control system supplied with the device. If it is necessary to replace individual system components, use only original parts available for purchase from the manufacturer. The individual cable plugs are selected so as to prevent incorrect connection of the components.

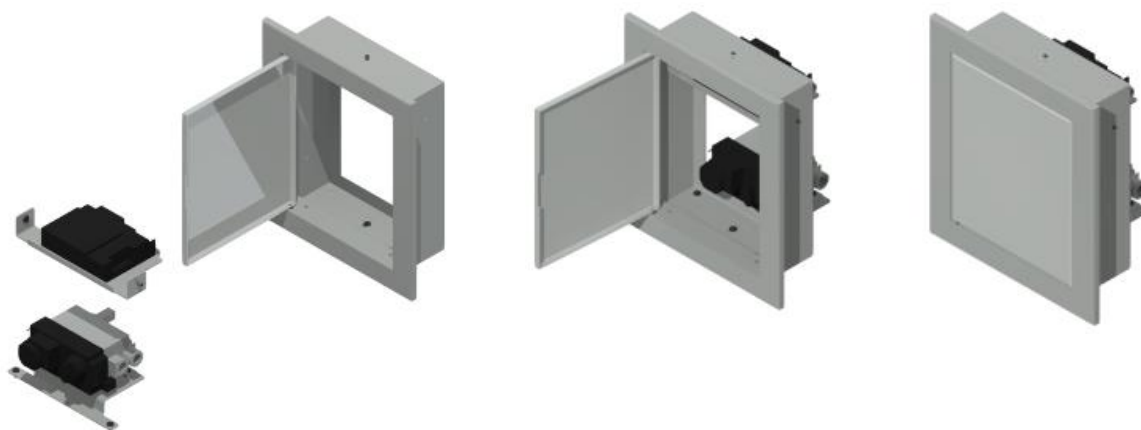


Fig. 16. Installation of the gas controller with the receiver in the distribution box

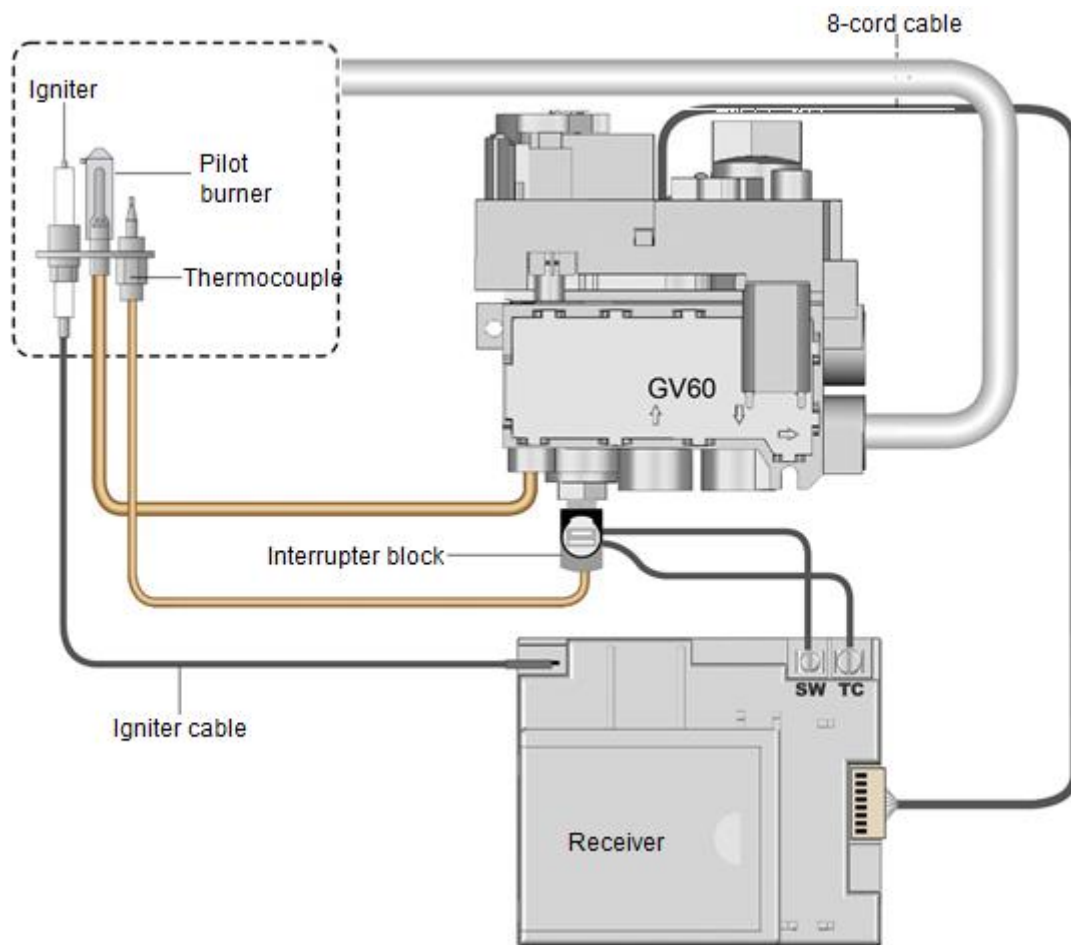


Fig. 17. Connection diagram for individual gas control system components

### ***Receiver Antenna***

The antenna is part of the kit directly connected to the B6R-R8U gas remote control receiver. It allows wireless control of the fireplace using a remote control. When connecting the receiver to the gas control system, pay special attention not to mount the antenna too close to the ignition cable.

### ***Connecting the device to the gas installation***

#### **Attention!!!**

**The main burner module used in LEO 200 gas appliances consists of two elements connected to the outlet of the GV60 controller by means of a tee.**

To be able to inspect all elements of the automatic gas control system, first remove the front window and remove the inspection element located in the base of the main burner.

**Attention!!!**

The glass should be dismantled only on a cooled fireplace with the gas supply cut off and the power supply disconnected.

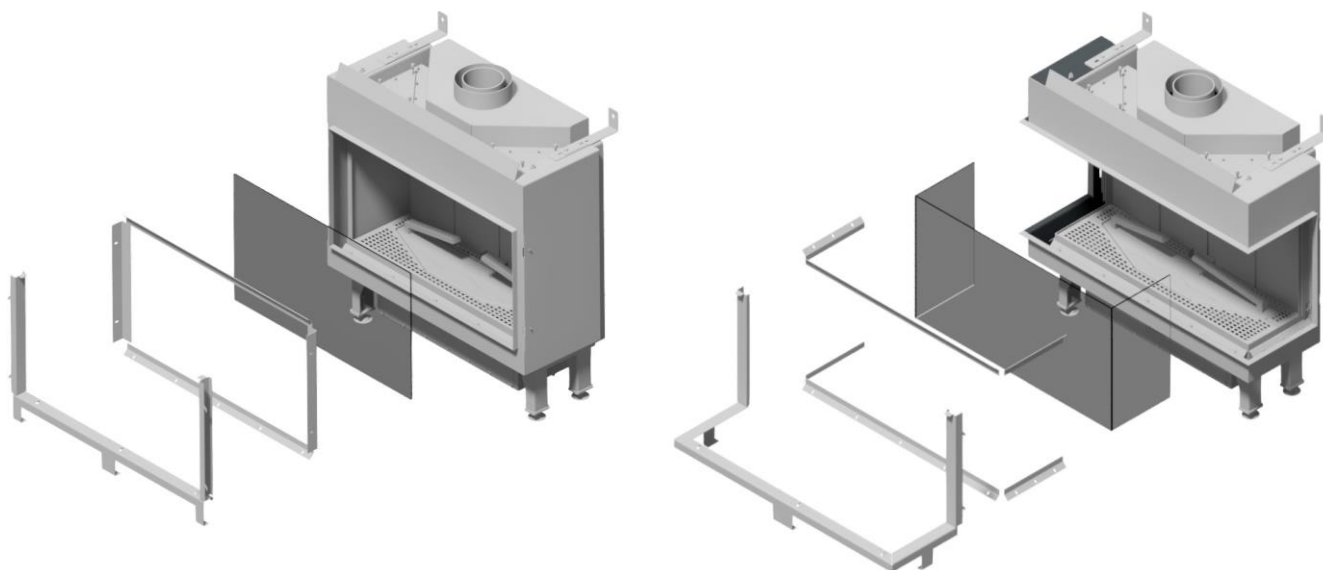


Fig. 18. How to remove the glass

The device is equipped with a heat-resistant glass that withstands temperatures up to 800 ° C. To replace it first, remove the side covers. The grilles are mounted with special projections. The side window clamps should be unscrewed with an Allen screwdriver. Next, remove the bottom cover and unscrew the remaining strips pressing the glass. After completing the above steps, you can easily remove the glass. Depending on the model of the LEO series the method of dismantling the glass may be slightly different from the one shown.

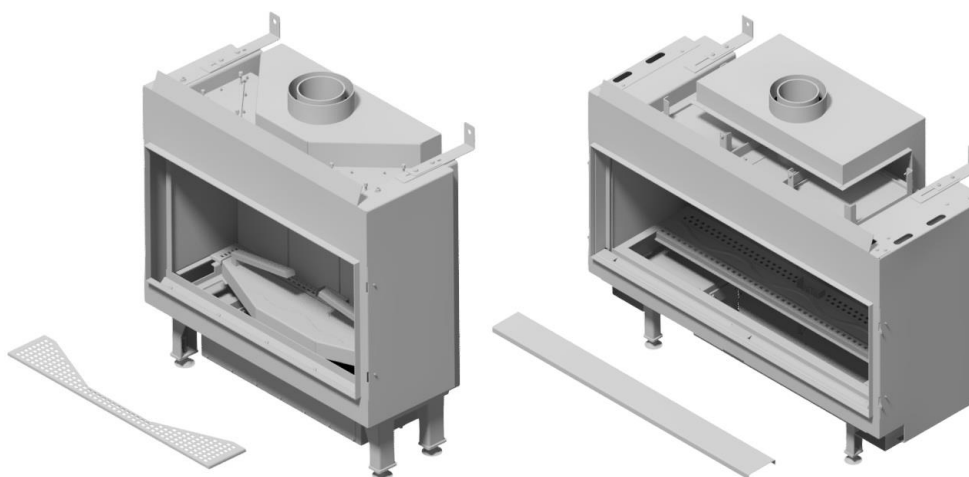


Fig. 19. Disassembly of the inspection element

**Attention!!!**

All activities related to connecting the device to the gas installation should be carried out with the power off. The insert may be installed only by a qualified fitter / service technician with appropriate qualifications.

**Attention!!!**

It is strictly forbidden to use open fire during the gas cartridge installation process. Failure to follow the instructions can result in fire or explosions, causing serious damage, damage to health, and even death..

**Technical specification of the gas control system used in the LEO series:**

FULFILLED DIRECTIVES	2009/142/EC and DIN EN 298, DIN EN 126, DIN EN 13611
FUEL	Gaseous fuels of the first, second and third families according to PN-EN 437: 2003 + A1: 2009 and product standard PN-EN 613: 2002 + A1: 2004
PRESSURE DROP / CAPACITY	2,5 mbar for 1,2 m <sup>3</sup> /h
ADJUSTMENT RANGE	Class C according to EN 88
REDUCER ADJUSTMENT	5 to 40 mbar (0,5 to 4 kPa)
MOUNTING POSITION	he module must not be mounted with the chopper block facing down. The position of the controller can be adjusted from 0 ° to 90 ° relative to its basic position.
MAXIMUM PRESSURE INPUT GAS	50 mbar (5 kPa)
CONNECTING THE MAIN GAS INLET	1/2" to 3/8" reducing nipple
CONTROL BURNER CONNECTION	M10x1 for 6 mm pipe
DEPARTURE OF CHIEF gas inlet and outlet	On side or on a bottom of the valve
MAXIMUM TORQUE TIGHTENING	3/8 "inlet and outlet connection: 35 Nm Control burner connection: 15 Nm
THERMOCOUPER / INTERRUPTOR BLOCK	M10x1, M9x1, M8x1
IGNITION	Piezo ignition
PERMISSIBLE OPERATING TEMPERATURE	Controller (Valve): 0 °C to 80 °C Receiver without batteries: 80 °C Receiver with batteries: 55 °C Remote controller: 60 °C Ignition cable: 150 °C



The gas control system used in the LEO series meets the requirements for appliances burning gaseous fuel contained in GAR Regulation 2016/426 and standards EN 298, EN 126, EN 13611. The system can be powered by gas fuels of the second and third families according to the EN 437 standard and the EN product standard 613. First, make sure that the device to be connected is intended for gas supply suitable for the type of gas installed. All necessary information as to the required gas parameters can be found on the fireplace rating plate. Before connecting the gas supply lines, blow them out to remove metal debris and other debris. The automatic gas control system should be protected against moisture and dust. These factors can cause irreparable damage to individual components. The gas supply pipe to the fireplace should be equipped with a ball valve with a diameter of 1/2 inch. Individual elements of the gas system must not be sealed with Teflon tape or PTFE tape (Use the sealing elements supplied with the device).

Fig. 20 shows the GV60 in its basic position with the chopper block lead downwards. The module cannot be mounted upside down. The position of the controller can be adjusted from 0 ° to 90 ° relative to its basic position (also vertically). Please note that all unused gas inlets or outlets should be sealed with appropriate caps.

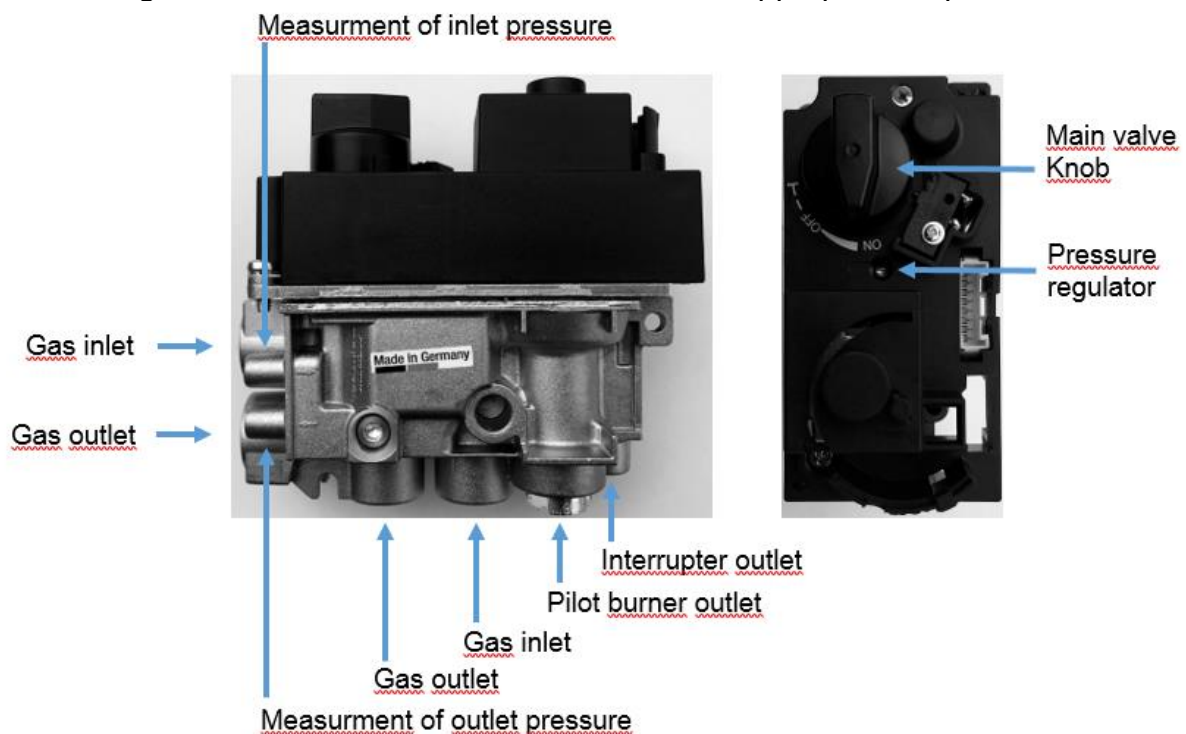


Fig. 20. GV60 controller in its basic position

**Attention!!!**

It is forbidden to remove the screws located in the controller housing. Do not connect the gas controller if the marking paint on individual parts of the device has been damaged.

## Control flame height

By default, the control flame height is set to the maximum and does not require manual adjustment. The thermocouple head should be within reach of the control flame.

## Gas outlet pressure regulation

1. Connect a pressure gauge to the outlet pressure measuring point (diameter 9 mm). To do this, first remove the screw in the connector and then connect the measuring device.
2. Start the device.
3. The pressure regulator is located in the upper part of the controller housing. To enable adjustment, remove the plastic plug (Fig. 21).
4. Turn the regulator screw to set the desired pressure on the main burner (high flame). To increase the pressure, turn the regulator screw clockwise, or reduce it by turning the screw counterclockwise.
5. After setting the proper pressure, secure the regulator screw by installing the plastic plug.
6. If no other adjustments are required, disconnect the pressure gauge and secure the outlet pressure measuring point connector.

If, despite the adjustment, the desired pressure has not been achieved, check the gas supply pressure by connecting the pressure gauge to the input pressure measuring point. If the inlet pressure is within the normal range, replace the controller; otherwise, take the necessary steps to ensure proper gas pressure.



Fig. 21. Method of regulating the outlet pressure

### **Attention!!!**

**The pressure regulator is blocked by tightening its adjusting screw to its maximum**

### **Adjusting the minimum height of the main burner flame**

1. Turn the main valve knob to the "OFF" position. Then turn them clockwise until the valve opens.
2. The minimum flame height of the main burner can also be adjusted by tightening the adjusting screw (Fig. 22).
3. Turn the screw clockwise to reduce the minimum flame height.
4. The minimum height of the main burner flame is factory set by the manufacturer.

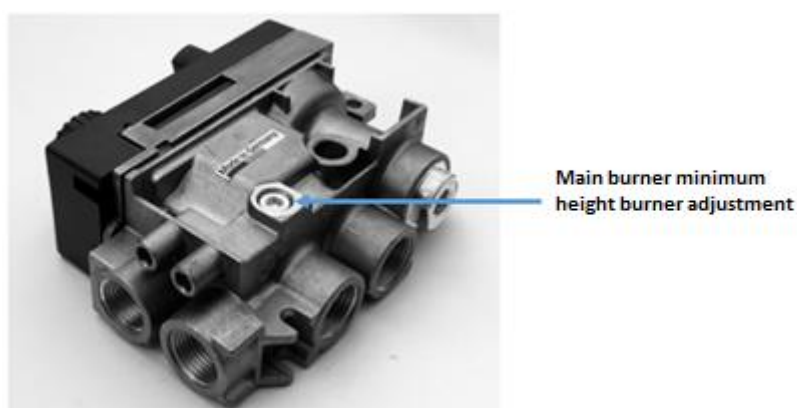


Fig. 22. Method of adjusting the minimum height of the main burner flame

### **Checking for leaks**

After connecting the system to the gas network, it is necessary to check the tightness of the connections made using a special sensor. In the event of leaks, close the gas shut-off valve and perform the installation of individual parts of the kit again.

### **Power connection**

#### **Attention!!!**

**Connect the power supply only after connecting the combustion air system and all elements of the gas control system**

The B6R-R8U receiver is powered by four 1.5V AA batteries. Special attention should be paid so that the electric cables connecting the gas controller with the receiver are kept away from hot elements of the fireplace. The indicator in the upper right corner of the display indicates the need to replace the remote control battery, while short signals appearing cyclically for three seconds immediately after starting the ignition procedure in the fireplace indicate the need to replace the battery in the receiver. Used batteries

in the receiver may overheat, spill or even explode. Do not install batteries into the device that have been exposed to the sun, moisture, high temperatures or shocks. Only batteries of the same type and manufacturer should be installed. Do not install new and used batteries. The power supply module G60-ZB90 can be optionally purchased with the set. This module is powered by four 1.5V AA batteries and should be connected directly to the receiver where the AC adapter is connected. The additional power module eliminates the need for a battery in the receiver. Optionally, the customer can buy a cable connecting the chopper block with the receiver, equipped with a switch, to the gas control system. The switch additionally protects the system against uncontrolled gas flow through the controller.

## **Installation of the device**

Before commencing the installation, the elements of the gas control system must be protected against dirt. Installation of the fireplace should be made of non-combustible materials (this also applies to the floor and ceiling) in accordance with applicable building regulations. If the fireplace is powered by natural gas, the exhaust grille should be placed under the ceiling. Liquid propane gas supply - butane requires the installer to build a built-in exhaust grille at the floor, above ground level.

## ***Installation of decorative elements***

### **Attention!!!**

**The manufacturer recommends using decorative elements optionally supplied with the device. The Kratki.pl Marek Bal company is not liable for damages resulting from the use of decorations other than those recommended.**

Depending on the user's preferences, the combustion chamber can be lined with one of several available sets of decorative elements. Decorative elements are made of non-combustible material. It is forbidden to place flammable elements in the device.

To mount decorative elements, it is necessary to remove the front window. The elements should be arranged in such a way that they do not cover the control flame and the main burner outlet openings, otherwise it may cause the fireplace to malfunction. The main burner of the fireplace is equipped with spacers to facilitate the correct arrangement of decorative elements. The distribution of elements in the combustion chamber of the device should allow free flow of air around the main burner and control flame. Ceramic components should not adhere to the glass as it may damage it. The correct and incorrect arrangement of decorative elements is presented below.

**Arrangement of decorative elements for the LEO 45/68 and LEO 76/62 series**



Fig. 23. The correct arrangement of decorative elements for the LEO 45/68 series



Fig. 24. The correct arrangement of decorative elements for the LEO 76/62 series

## Arrangement of decorative elements for the LEO 100 and LEO 200 series



Fig. 25. Correct arrangement of decorative elements



Fig. 26. Correct arrangement of decorative elements - stones with logs

## ***First Start***

Before starting the fireplace for the first time, make sure that all connections of individual system components have been made in accordance with this manual. Incorrect connection of individual elements of the gas control system may damage them.

At the first few starts, the cartridge can give off an unpleasant odor that can last several hours after the end of smoking. This is due to the phenomenon of burning the paint. Domestic animals and birds may react sensitively to secreted vapors. In order to speed up the burning process, the fireplace must be warmed for a few hours, setting the maximum flame height. If during the first burning, a deposit appears on the inner surface of the glass, it should be removed with a glass cleaner. The first burning in a gas cartridge should be carried out in a well-ventilated room.

With gas heating, the user can face the phenomenon of tinting walls and ceilings. It is caused by the convective air movement, and thus the dust particles contained in it. A partial solution to this problem is to frequently ventilate the room in which the gas cartridge is located. If the fireplace has been installed in a new building, wait a minimum 6 weeks before the first start-up to remove the building moisture found on the walls, floor and ceiling.

## ***Operation***

Both KOZA AB and THOR VIEW gas space heaters are controlled wirelessly from the remote control. Normally, the system is powered by four 1.5V batteries installed in the receiver. Short cyclical signals appearing for about three seconds when attempting to light up in a gas cartridge inform about the need to replace the battery in the receiver. A single long signal means that the switch on the cable connecting the receiver to the chopper block (optional) is in the "O" position, or one of the wires connecting the receiver to the controller has not been properly connected. Set the switch to the "I" position. If the control flame does not ignite, close the gas shut-off valve and contact a service technician. If, within six hours, the device does not receive a command from the user, the automatic gas control system will lower the flame of the main burner to a minimum. In the case of continuous operation of the fireplace without user intervention after five days from the last setting, the system will turn off the device and cut off the gas supply. Before the batteries are completely discharged in the receiver, the controller will automatically shut off the gas supply to the fireplace.

## Control

### ATTENTION!!!

#### NOTE!!!

The remote control should always be kept out of the reach of children and other person unaware, not capable of assessing the consequences of their actions.

The user gets the device along with the included remote control, type B6R-H9 (Fig. 36).



Fig. 36. B6R-H9 remote control

### ATTENTION!!!

#### NOTE!!!

The B6R-H9 remote control units have a built-in sensor used in the thermostat mode. The unit continuously measures the ambient temperature and compares it with the temperature set on the thermostat. It should be kept in a dark place, to rule out measurement errors associated with direct sunlight.

#### NOTE!!!

Never use tools to change the position of knobs. Changing the position of the knobs can only be made by hand, otherwise you may damage the controller. In the case of locking the knobs, contact your service representative.






Gas Stove AB uses modern B6R-H9 remote controls set in accordance with the European standard for radio frequency 868MHz. The remote control supplied with the stove requires a new code transmission. To do it, in the first place, press and hold the „RESET“ button on the receiver until you hear two characteristic signals and then release the button. This operation should be done by means of the thin element with blunt ends. Further on, from the remote control, press and hold , until you hear two short beeps, indicating the remote control is synchronized with the receiver. One long beep indicates that the elements of the system have not been properly paired.





Figure 37. „RESET“ button - receiver

## INFORMATION

To view the current version of the software used by the remote control, simultaneously press the  and . Simultaneous pressing the button  and the button  will display the remote control model.

### Deactivating the remote control.

Install batteries. All available icons will appear on the display and will flash. During the flashing, press the appropriate icon for the function and hold it for 10 seconds. The icon appropriate for the selected button will flash until the end of the deactivation process. The remote control display shows the icon adequate for the selected function and two horizontal lines. If the function is deactivated two horizontal lines will appear on the display when pressing the button responsible for its selection. After replacing batteries, the settings will remain unchanged.

### Activating the remote control.

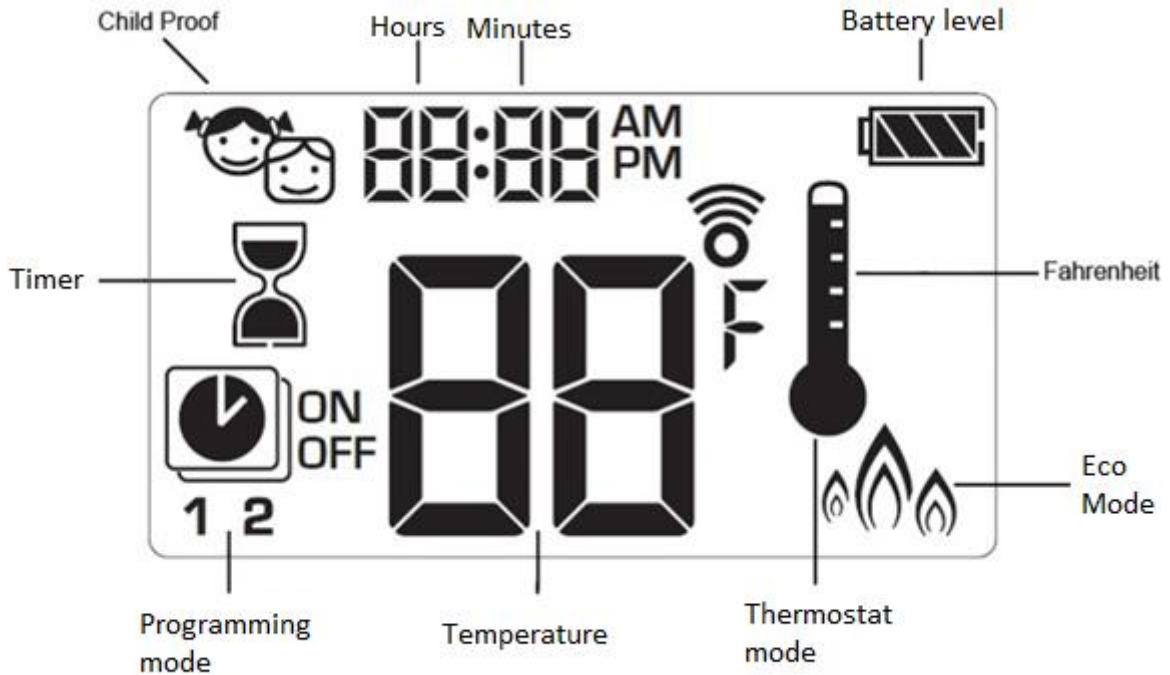
Install batteries. All available icons will appear on the display and will flash. Press the appropriate icon for the function and hold it for 10 seconds. The icon appropriate for the selected button will flash until the end of the activation process. The remote control display shows the icon adequate for the selected function.

#### **NOTE!!!**



**If, when you try to light it, the control flame goes out, wait for at least five minutes before trying again to light the fireplace.**

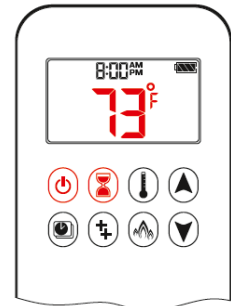
**If, after four attempts to light the fireplace, the control flame will not ignite, close the gas shut-off valve to the appliance and contact your service representative.**

## USER MANUAL OF THE 6-SYMBOL B6R-H9 CONTROL UNIT





### SETTING OF THE TEMPERATURE UNIT.

To change the temperature unit, simultaneously press the   buttons. You can choose between Celsius and Fahrenheit degrees. Choosing °F will automatically set the clock in a 12-hour format, while the choice of °C sets the clock in a 24-hour format.



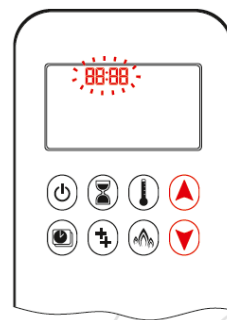
### CHILD PROOF

To change the temperature unit, simultaneously press the   buttons. You can choose between Celsius and Fahrenheit degrees. Choosing °F will automatically set the clock in a 12-hour format, while the choice of °C sets the clock in a 24-hour format.



### TIME SETTINGS

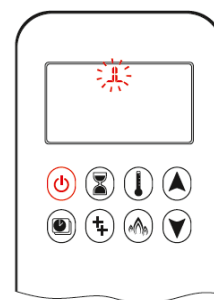
1. To be able to adjust the day of the week, press the ▲ button and the ▼ button.
2. Press ▲ or ▼ to select a number corresponding to the day of the week (1 - Monday, 2 - Tuesday 3 - Wednesday 4 - Thursday, 5 - Friday, 6 - Saturday, 7 Sunday)
3. Simultaneously press the ▲ button and the ▼ button. Hours will flash.
4. Set the hour using the ▲ and ▼ buttons.
5. Simultaneously press the ▲ button and the ▼ button. Minutes will flash.
6. Set the minutes using the ▲ button and the ▼ button.
7. To confirm the setting, simultaneously press ▲ and ▼ or wait.



## MANUAL MODE

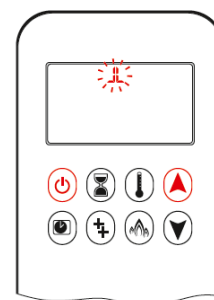
### Lighting the fire in the fireplace with a single button (default setting)

- Press the ⏻ button until you hear two short beeps. Starting the firing sequence is confirmed by the occurrence of a flashing icon on the display of the burner. Release the button.
- Kindling the control flame is confirmed by a single signal.
- After kindling the main burner, the remote control automatically switches to the manual mode.



### Lighting a fire in the fireplace with two buttons

- Simultaneously press the ⏻ button and the ▲ button until you hear two short beeps. Starting the firing sequence is confirmed by the occurrence of a flashing icon on the display of the burner. Release the button.
- Kindling the control flame is confirmed by a single signal.
- After kindling the main burner, the remote control automatically switches to the manual mode.



### Lighting a

### Information:

To change the kindling method, immediately after you install the batteries in the remote control, hold the ⏻ button for 10 seconds. The remote control display shows „ON“ and a flashing digit corresponding to the current settings.


- 1 – Lighting a fire by pressing ⏻ .
- 2 – Lighting a fire by pressing the ⏻ and the ▲ buttons.


End of the procedure of changing the method of lightening a fire is confirmed with the display reading the appropriate number.

### NOTE!!!

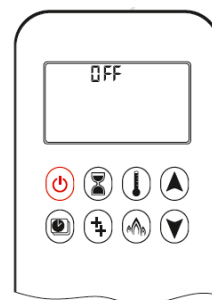
**If, after several attempts to fire, ignition of the control flame does not take place, set the main valve knob to „OFF“ and refer to the section „Possible Problems and Solutions“.**

### Standby or off mode


To make the unit switch to the standby mode, hold the  button until the main burner is extinguished.


To turn the device off, press . The control flame will be extinguished.

**Before attempting to re-start the fireplace, wait 5 seconds.**

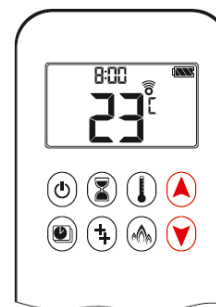


### Adjusting the height of the flame

To make the unit switch to the standby mode, hold the  button until the main burner is extinguished.


To turn the device off, press . The control flame will be extinguished.

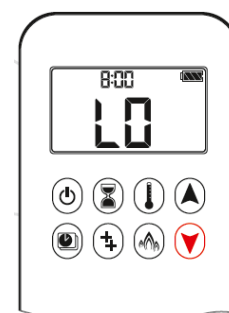
**Before attempting to re-start the fireplace, wait 5 seconds.**




## SETTING THE MINIMUM AND MAXIMUM HEIGHT OF THE FLAME

### Minimalna wysokość płomienia

To reduce the burner flame to the minimum height, double-press the  button. The display shows the „LO” symbol










### The maximum height of the flame



To increase the burner to the maximum value, double-press the  button. The display shows the „HI” symbol.

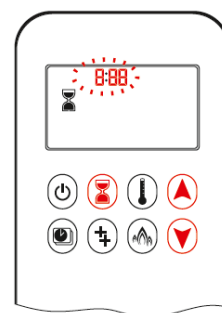


**SLEEP TIMER****Enabling/Settings**

1. Press and hold  until you see the  icon. The hours' box will flash.
2. Enter a value using the  and  buttons.
3. To confirm, press . The minutes' box will flash.
4. Enter a value using the  and  buttons.
5. To confirm, press or wait.

**Disabling:**

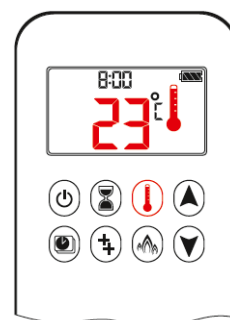
To deactivate the timer, press the  button the  icon will disappear with countdown time.

**Information:**

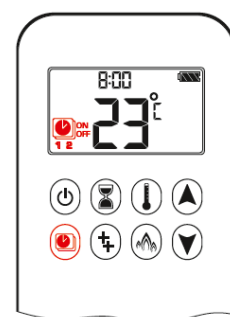
After the expiry of the countdown time, the fireplace will be extinguished. The sleep timer only works in different modes: Manual, Thermostat and Eco. The maximum value of the timer is 9 hours and 50 minutes.

**MODES****Thermostat mode**

The room temperature is measured and compared with the temperature set on the thermostat. The flame height is automatically adjusted so as to reach the set temperature.

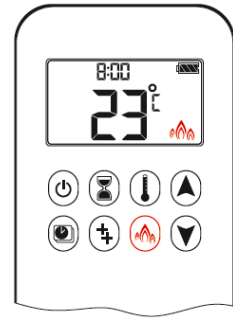
**Programmed mode**

The room temperature is measured and compared with the temperature set on the thermostat. The flame height is automatically adjusted so as to reach the set temperature.



### Eco mode



The flame height is adjustable between its extremes. If the room temperature is lower than the temperature preset on the thermostat, the flame height reaches its maximum value and remains at a high level for a longer period of time. If the room temperature is lower than the preset, the flame height is reduced to a minimum for a long period of time. One cycle takes approximately 20 minutes.







## THERMOSTAT MODE

### Enabling and disabling the thermostat

Enabling:






Press the  button. The display shows the icon  and the preset temperature as the first and the actual room temperature.

Disabling:

1. Press the  button .
2. Press the  button of the  button.
3. Press the  button, to enter the Programmed mode.





### Thermostat settings

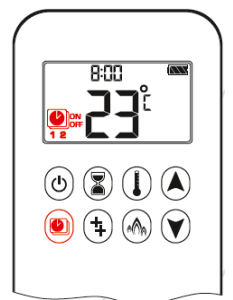
1. Press and hold  until you see the icon  . The temperature displayed flashes.
2. To set the desired temperature use the  and  buttons.
3. To confirm, press  or wait.







## PROGRAMMED MODE

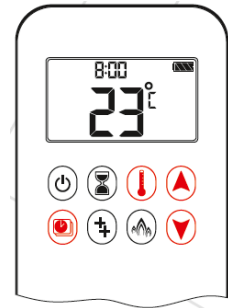
### Enabling the programmed mode

Press the  button. The display shows the  icon and the 1 or 2 symbols and „ON” and „OFF”.



### Disabling the programmed mode

1. Press the  button or the  button, or the  button to go to the manual mode.
2. Press the  button, to go to the Thermostat mode.



#### Information:








Entering the switch-on temperature of the thermostat will automatically set the same value for the switch-on temperature of the programmed mode.

#### Default settings:

Temperature of switching on: 21°C




Temperature of switching ff: „--” (only the control flame)

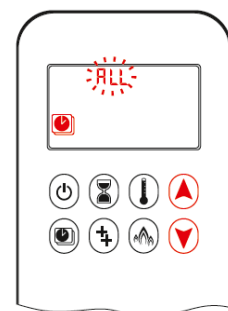
### Temperature settings

1. Press and hold the  button until you see the flashing  icon. „ON” and the switching off temperature will be displayed (set in the thermostat mode).
2. To continue, press  or wait. The display shows the  icon, the „OFF” symbol and a flashing value to symbolize the switching off temperature.
3. Set the desired temperature using the  or  buttons.
4. To confirm, press .




### Setting the days



5. The display flashes „ALL”. Press the  button or the  button to select one of the three options to enter (ALL, SA:SU, 1, 2, 3, 4, 5, 6, 7).
  6. To confirm, press .
- (SA:SU symbols, respectively, mean Saturday and Sunday. Individual numbers correspond to the days of the week (e.g. 1 Monday 2 - Tuesday 3 – Wednesday 4 - Thursday, 5 - Friday, 6 - Saturday, 7 - Sunday).







### Switching on time settings (Program 1)


„ALL” option selected

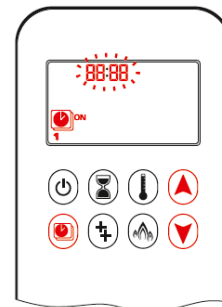
7. The display shows , 1, „ON”, then for a while you will see the „ALL” symbol. Subsequently, the hour will begin to flash.

8. Set the hour using the  and  buttons.

9. To confirm, press . The display shows the  icon, 1, „ON”, then for a while you will see the „ALL” symbol. Subsequently, the minutes will begin to flash.

10. Set the minutes using the  and  buttons.

11. To confirm, press .







### Switching off time settings (Program 1)


Choose option „ALL”

12. The display shows , 1, „OFF”, then for a while you will see the „ALL”

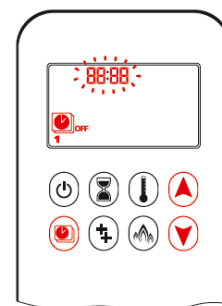
symbol. Subsequently, the hour will begin to flash.

13. Set the hour using the  and  buttons.

14. To confirm, press . The display shows , 1, „ON”, then for a while you will see the „ALL” symbol. Subsequently, the minutes will begin to flash.

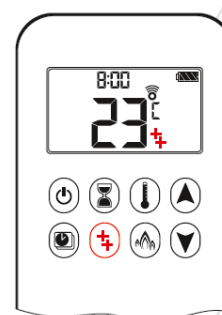
15. Set the minutes using the  and  buttons.

16. To confirm, press .




### AN OPTIONAL AUXILIARY

This option is available only for gas inserts with more than one burner.



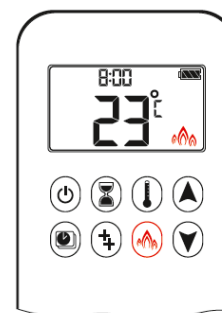
### ECO MODE

Switching on:

Press the  button. The display shows .

Switching off:

Press the  button. The  icon disappears from the display.





### Replacement of batteries

Batteries in the receiver, remote control or the power supply module can overheat, spill or even cause an explosion. Do not use batteries that have been exposed to the sun, moisture, heat or vibration.

Install only batteries of the same type and the same manufacturer. Do not install new batteries with worn ones. The remote control is powered by two AAA batteries. The B6R-R8U receiver and the G60-ZB90 power module are powered by four AA batteries 1.5V. The battery life in the case of the remote control and the receiver is estimated at about 1 heating season. The device manufacturer recommends the use of alkaline batteries because of the lower risk associated with unsealing. It is also permissible to use rechargeable batteries. When removing batteries, do not use tools that can cause a short-circuit. Replacing batteries with conductive objects can permanently damage the electronic components of the remote control and the receiver.

Replacement of the batteries in the remote control:

- ✓ Remove the cover located on the rear of the remote control.
- ✓ Gently remove the used batteries from the remote control.
- ✓ Install new AAA batteries observing the polarity markings (+/-).
- ✓ Replace the cover on the back wall of the remote

Replacing batteries in the receiver/power supply module:

- ✓ Open the cabinet door panel.
- ✓ Carefully remove the B6R-R8U receiver/G60-ZB90 power module.
- ✓ Remove the cover.
- ✓ Remove the used four AA batteries and install new, paying attention to the

#### Information:

- Subsequently, the user can enter the time on and off for Program 2. If not, Program 2 will remain inactive.
- Temperature settings for enabling and disabling Program 1 and 2 are the same for all options (**ALL, SA: SU, 1, 2, 3, 4, 5, 6, 7**). Entering new settings for switching on and off temperatures automatically sets the default preset values.
- Entering new settings for switching on and off time for Program 1 and 2 will set new values as the default. To restore the factory settings for program 1 and 2, reset the remote control by removing the battery.

- ✓ polarity markings (+/-) on the receiver/power module.
- ✓ Replace the cover on the cover receiver/supply module.

### Technical parameters of the gas

$p_n$  – nominal connection pressure

$p_{max}$  – maximum connection pressure

$p_{min}$  – minimum connection pressure

$p_{reg} Q_{max}$  – gas pressure behind the regulator for rated load

$p_{reg} Q_{min}$  – gas pressure behind the regulator for reduced load

$Q_n$  – rated thermal load -  $H_i$

$Q_{min}$  – reduced thermal load  $H_i$

$V Q_{max}$  – gas flow rate for rated load

$V Q_{min}$  – gas flow rate for reduced load

$\varnothing_{nozzle}$  – diameter of the main burner gas nozzle

## LEO 45/68

Reference gas	-	G20	G25.3	G30			G31		
Device category	-	I <sub>2E</sub> , I <sub>2H</sub>	I <sub>2EK</sub>	I <sub>3B/P</sub>			I <sub>3P</sub>		
p <sub>nom</sub>	mbar	20	25	30	37	50	30	37	50
p <sub>max</sub>		25	30	35	45	57,5	35	45	57,5
p <sub>min</sub>		17	20	20	25	42,5	25	25	42,5
p <sub>reg</sub> Q <sub>max</sub>		Fully open	Fully open	18,3			21,0		
p <sub>reg</sub> Q <sub>min</sub>		8,5	9,4	10,7			12,2		
Q <sub>max</sub>	kW	5,8	5,5	4,1			3,8		
Q <sub>min</sub>		3,7	3,6	3,1			2,9		
V Q <sub>max</sub>	m <sup>3</sup> /h	0,615	0,631	0,126			0,150		
V Q <sub>min</sub>		0,396	0,414	0,096			0,118		
Ø nozzle	mm	1,9	1,9	1,2			1,2		
Nozzle designation	-	NG1.9	NG1.9	LPG 1.2			LPG 1.4		

\* Regulator fully opened

## LEO 70

Reference gas	-	G20	G25.3	G30			G31		
Device category	-	I <sub>2E</sub> , I <sub>2H</sub>	I <sub>2EK</sub>	I <sub>3B/P</sub>			I <sub>3P</sub>		
p <sub>nom</sub>	mbar	20	25	30	37	50	30	37	50
p <sub>max</sub>		25	30	35	45	57,5	35	45	57,5
p <sub>min</sub>		17	20	20	25	42,5	25	25	42,5
p <sub>reg</sub> Q <sub>max</sub>		Fully open	Fully open	18,3			21,0		
p <sub>reg</sub> Q <sub>min</sub>		9,3	9,4	10,7			12,2		
Q <sub>max</sub>	kW	7,0	7,0	6,0			4,8		
Q <sub>min</sub>		3,4	3,4	3,4			3,4		
V Q <sub>max</sub>	m <sup>3</sup> /h	0,692	0,707	0,172			0,176		
V Q <sub>min</sub>		0,332	0,347	0,109			0,127		
Ø nozzle	mm	2,1	2,1	1,3			1,3		
Nozzle designation	-	NG2.1	NG2.1	LPG1.3			LPG1.3		

\* Regulator fully opened

**LEO 76/62**

Reference gas	-	G20	G25.3	G30			G31		
Device category	-	I <sub>2E</sub> , I <sub>2H</sub>	I <sub>2EK</sub>	I <sub>3B/P</sub>			I <sub>3P</sub>		
p <sub>nom</sub>	mbar	20	25	30	37	50	30	37	50
p <sub>max</sub>		25	30	35	45	57,5	35	45	57,5
p <sub>min</sub>		17	20	20	25	42,5	25	25	42,5
p <sub>reg</sub> Q <sub>max</sub>		Fully open	Fully open	18,3			21,0		
p <sub>reg</sub> Q <sub>min</sub>		7,6	9,2	10,7			12,2		
Q <sub>max</sub>	kW	8,6	8,0	5,6			5,1		
Q <sub>min</sub>		5,2	4,9	4,4			4,7		
V Q <sub>max</sub>	m <sup>3</sup> /h	0,909	0,927	0,173			0,208		
V Q <sub>min</sub>		0,551	0,561	0,139			0,192		
Ø nozzle	mm	2,3	2,3	1,3			1,3		
Nozzle designation	-	NG2.3	NG2.3	LPG1.3			LPG1.3		

\* Regulator fully opened

**LEO 100**

Reference gas	-	G20	G25.3	G30			G31		
Device category	-	I <sub>2E</sub> , I <sub>2H</sub>	I <sub>2EK</sub>	I <sub>3B/P</sub>			I <sub>3P</sub>		
p <sub>nom</sub>	mbar	20	25	30	37	50	30	37	50
p <sub>max</sub>		25	30	35	45	57,5	35	45	57,5
p <sub>min</sub>		17	20	20	25	42,5	25	25	42,5
p <sub>reg</sub> Q <sub>max</sub>		19,1	23,0	25,3			28,0		
p <sub>reg</sub> Q <sub>min</sub>		5,9	7,1	15,9			17,6		
Q <sub>max</sub>	kW	9,0	8,3	9,5			8,2		
Q <sub>min</sub>		4,7	4,5	7,2			6,5		
V Q <sub>max</sub>	m <sup>3</sup> /h	0,932	0,951	0,277			0,324		
V Q <sub>min</sub>		0,493	0,509	0,219			0,257		
Ø nozzle	mm	2,45	2,45	1,6			1,6		
Nozzle designation	-	NG2.45	NG2.45	LPG1.6			LPG1.6		

\* Regulator fully opened

## LEO 200

Reference gas	-	G20	G25.3	G30			G31		
Device category	-	I <sub>2E</sub> , I <sub>2H</sub>	I <sub>2EK</sub>	I <sub>3B/P</sub>			I <sub>3P</sub>		
p <sub>nom</sub>	mbar	20	25	30	37	50	30	37	50
p <sub>max</sub>		25	30	35	45	57,5	35	45	57,5
p <sub>min</sub>		17	20	20	25	42,5	25	25	42,5
p <sub>reg</sub> Q <sub>max</sub>		18,1	22,4	27,3			29,0		
p <sub>reg</sub> Q <sub>min</sub>		6,0	7,1	19,9			21,0		
Q <sub>max</sub>	kW	16,0	15,0	14,0			12,5		
Q <sub>min</sub>		8,5	8,1	12,0			10,5		
V Q <sub>max</sub>	m <sup>3</sup> /h	1,646	1,680	0,408			0,477		
V Q <sub>min</sub>		0,890	0,926	0,348			0,407		
Ø nozzle	mm	2 x 2,3	2 x 2,3	2 x 1,45			2 x 1,45		
Nozzle designation	-	NG2.3	NG2.3	LPG1.45			LPG1.45		

\* Regulator fully opened

## Destination countries

Code of a country	Appliance category	Nominal pressure
DE, PL, RO	I <sub>2E</sub>	20 mbar
AT, CH, CY, CZ, DK, EE, ES, FI, GB, GR, HR, HU, IE, IT, LT, LU, LV, NO, PT, RO, SE, SI, SK, TR	I <sub>2H</sub>	20 mbar
NL	I <sub>2EK</sub>	25 mbar
BE, FR	I <sub>2E+</sub>	20/25 mbar
FI, NL, RO	I <sub>3P</sub>	30 mbar
CH, CZ, ES, FR, GB, GR, HR, IE, IT, LT, NL, PL, PT, SI, SK	I <sub>3P</sub>	37 mbar
BE, CY, DE, DK, EE, FR, GR, HR, HU, IT, LT, NL, NO, RO, SE, SI, SK, TR	I <sub>3B/P</sub>	30 mbar
AT, CH, DE, SK, GR	I <sub>3B/P</sub>	50 mbar
BE, CY, CH, CZ, ES, FR, GR, IE, IT, PT, SI, SK, TR	I <sub>3+</sub>	28-30/37 mbar

## Service and maintenance of the device

All maintenance work should be carried out on a cooled fireplace with the gas supply cut off and the power supply disconnected. The gas insert can be serviced and the technical condition of the air-flue system can only be checked by a qualified technician with a valid qualification certificate. These activities should be performed at least once a year. It is forbidden to make any changes to the device's design. When replacing individual parts, use only original parts available from the manufacturer.

A person with the qualifications of a chimney sweep master with gas licenses is authorized to carry out a review of the concentric air-flue gas system. The air-flue gas system used in equipment powered by gaseous fuels should be subject to mandatory cleaning at least twice a year.

L.P.	LIST OF INSPECTION ACTIONS CARRIED OUT DURING THE REVIEW	
PREPARING THE DEVICE FOR THE SERVICE		
1	1.1	<p>Get information on the type and pressure of gas supplied to the device. Check the model, device category and gas under which the device has been adapted. If the device is not adapted to work with the gas supplied to it, stop the service and record it in the inspection report.</p> <p>Make sure the fireplace is cool.</p> <p>Check the gas cartridge housing for cracks.</p> <p>Check if the flammable elements are at a safe distance from the fireplace casing.</p> <p>Locate the transfer case.</p> <p>Shut off the gas supply to the device.</p> <p>Unplug the power supply or remove the batteries from the receiver.</p>
	1.2	<p>Get information on which flue gas system was used during the installation of the device (manufacturer and model),</p> <p>Check how the flue gas system has been routed.</p>
PRELIMINARY OPERATIONS		
2	2.1	<p>Open the distribution box containing the elements of the automatic gas control system.</p> <p>Check that the components of the gas control system are not exposed to temperatures above 55°c (battery power) / 80°c (power supply using the AC adapter).</p> <p>Check that the receiver antenna is not damaged.</p> <p>If a power supply is used, check that the cable is not damaged.</p> <p>Check that the automation components and the electrical circuit are not dirty (dust, components of the device).</p> <p>Check that the switch box is not exposed to moisture.</p> <p>Check gas lines for signs of corrosion.</p> <p>Check whether the seal applied to the outlet pressure regulator in the controller is damaged. A damaged seal means tampering with the manufacturer's factory settings, which should be noted in the inspection report.</p> <p>Check that the distribution box has adequate ventilation.</p> <p>Check that the cables connecting the controller with the receiver are not damaged.</p>

	2.2	<p>Check that all panes provided with the device are not damaged. Windows with cracks and deep scratches should be replaced immediately. Remove the front window. Remove the sealing cord from the glass and clean its inside surface.</p> <p>Carefully remove the decorative elements from the combustion chamber. If necessary, use a vacuum cleaner to remove debris from decorative elements.</p> <p>Check that the decorative elements have not been damaged.</p> <p>Check if the decorative elements require cleaning.</p> <p>Wipe the burner and the burner base with a damp cloth. The fireplace should not be cleaned with caustic agents.</p> <p>Check that all air inlets to the combustion chamber are clear. If necessary, clear the holes.</p> <p>Check the combustion chamber for signs of corrosion. If necessary, remove corrosion and cover the defects with a new layer of fireplace paint.</p> <p>If the device is equipped with side glazing, clean the inner surfaces of the glass.</p> <p>Remove the inspection element from the burner base and check the main burner nozzle marking.</p>
<b>OVERHAUL AIR FLUE SYSTEM OVERVIEW</b>		
3	3.1	<p>Check the technical condition of the exhaust air system.</p> <p>Check the patency of the flue system.</p> <p>If necessary, clean the flue system.</p>
<b>FIRING UP AND OPERATION OF AUTOMATIC GAS CONTROL SYSTEM COMPONENTS</b>		
4	4.1	<p>Connect the power adapter or place new batteries in the receiver.</p> <p>Replace the remote control batteries with new ones.</p> <p>Check whether the remote control display is damaged and indicate the ambient temperature correctly.</p> <p>If necessary, set the correct date and time on the remote control.</p> <p>If necessary, perform the procedure of pairing the remote control with the receiver.</p> <p>Supply gas to the device.</p> <p>Start the device by observing whether:</p> <ul style="list-style-type: none"> <li>- the main valve knob works correctly;</li> <li>- no breakdowns in the circuits;</li> <li>- the thermocouple is within the control flame;</li> <li>- the main burner ignites smoothly. Ignition of the main burner and flame transfer should not occur abruptly.</li> </ul> <p>Check that the automatic gas control system is working correctly. Reduce and increase the flame. Run any mode and check its operation.</p>
	4.2	<p>During the operation of the device check the tightness of the entire gas installation.</p> <p>Check the gas pressure to the controller and the gas pressure behind the controller. Record the results in the report. If the pressure value in the system behind the controller is different than recommended, make the correction using the pressure regulator. If the pressure of gas supplied to the device does not allow making the appropriate correction on the controller, report it to the owner of the premises where the device is installed.</p>

FINAL STEPS		
5	5.1	<p>Make sure the fireplace is cool.</p> <p>Place the inspection element in the base of the burner.</p> <p>Place the elements decorative in the combustion chamber.</p> <p>Check that the decorative elements are not in contact with the glass.</p> <p>Check that the control burner is not obstructed by decorative elements.</p> <p>Replace the seal between the glass and the body of the device.</p> <p>Mount the front window and wipe the outside of it.</p> <p>Perform firing up and shutting down the device several times, checking the correct operation of individual automation components.</p>

## ***Battery replacement***

Used batteries in the receiver, remote control or power supply module may overheat, spill or even explode. Do not install batteries into the device that have been exposed to the sun, moisture, high temperatures or shocks. Only batteries of the same type and manufacturer should be installed. Do not install new and used batteries. The remote control is powered by two AAA batteries. The B6R-R8U receiver and the optional G60-ZB90 power module are powered by four 1.5V AA batteries. The battery life of the remote control and the receiver is estimated at about 1 heating season. The manufacturer of the device recommends the use of alkaline batteries due to the lower risk of their sealing. The use of rechargeable batteries is also permitted. When removing the battery, do not use tools that can cause a short circuit. Replacing the battery with electrically conductive objects can permanently damage the electronic components of the remote control and the receiver. Batteries are classified as hazardous chemical waste, so after use, they should not be disposed of with other household waste.

Battery replacing in the remote control:

- Remove the cover on the back of the remote control.
- Gently remove the used AAA battery from the remote control.
- Install new AAA batteries, observing the polarity (+/-).
- Replace the cover on the back of the remote control

Replacing the battery in the receiver / power module:

- Open the control cabinet door.
- Carefully remove the B6R-R8U receiver / power module G60-ZB90.
- Remove the cover.
- Remove four used AA batteries and install new ones paying attention to the polarity markings (+/-) on the receiver / power module housing.
- Replace the cover on the receiver / power supply module housing.

## Possible problems and solutions

There are many factors that can affect the gas cartridge to malfunction. To exclude a possible malfunction of the device or the automatic gas control system, make sure that the fireplace has been connected in accordance with these instructions. The table below shows how to deal with individual symptoms.


FAULT	POSSIBLE SOLUTIONS
<p>The device won't start (no sound signal confirming the start of the firing up procedure)</p>	<p>Replace the remote and receiver batteries.            If the receiver is powered by the power module, check its operation.            If the receiver is powered by the power supply, check the power supply cable for damage.            Reset the receiver and program a new transmission code.            Check that the receiver antenna is not damaged.</p>
<p>No voltage on the controller coil (there are no characteristic "clicks")</p>	<p>Check that the switch wire on the gas control module is not damaged.            Short cyclic signals appearing when trying to turn on the fireplace indicate the need to replace the battery in the receiver.            For one long beep:            Check whether the cable connecting the receiver with the gas control module is damaged.            Check whether the individual connections of the electric circuit are loose.            If the stepper motor is not working properly, replace the gas control module.            If the gas control module coil is not working properly, replace the module.            If the microswitch in the gas control module is not working properly, replace the module.</p>
<p>No spark on the electrode</p>	<p>Check the correct connection of the cable between the receiver and the electrode.            Check that the electrode is not damaged.            Check the operation of the spark gap.            Check for a puncture in the system.            If the ignition elements work properly and the firing up procedure is not started:            Press the "RESET" button on the receiver.            Correct the placement of the magneto cable.            If possible, shorten the cable between the receiver and the electrode.            Add a ground wire between the controller and the control burner.</p>
<p>No control flame</p>	<p>Check that the gas shut-off valve is open.            Try to light the fireplace several times. During the first start-up, the system is aerated, therefore the control flame may appear on the burner only after several tests.            Check that the gas system pressure is correct.            Check the connection between chopper and receiver is correct.</p>



After lighting up the control flame, a spark appears on the electrode	Check the correct connection between the chopper and the controller. If the electronic amplifier is damaged, replace the receiver.
The control flame goes out automatically	Check that the thermocouple sensor is functional and correctly connected to the gas control module. Check if the control flame is able to heat the thermocouple sensor. Check that the gas control module gas valve is not damaged.
The main burner does not ignite	Check that the main burner holes are not blocked. Check the height of the control flame. Check that the control flame is not obstructed by decorative elements. Check that the thermocouple sensor is functional and correctly connected to the gas control module. Check if the control flame is able to heat the thermocouple sensor.
The main burner goes out automatically	Check the tightness of the air / flue gas system along its entire length. Check the routing of the exhaust air system. Check if the end of the air / flue gas system is derived in accordance with applicable regulations, taking into account any difficulties related to wind pressure.
The main burner goes out automatically when the fireplace reaches a certain temperature	Check thermostat settings. Check that the automation components are not exposed to temperatures: - higher than 55°C (receiver with batteries); - higher than 80°C (controller, receiver without batteries).
On the glass sediment is deposited	Check that the main burner holes are not blocked. Check that the gas pressure in the installation is correct. Check that the correct nozzle is installed in the main burner. Check the correctness of the exhaust gas system. Check the patency of the chimney installation.
The device cannot be turned off from the remote control position	Shut off the gas supply. If there is no response, replace the gas control module. Check the correct connection between the chopper and the controller.

## Failure codes

The remote controls used in Kratki.pl gas appliances are equipped with a display that facilitates automation control. In case of problems with the fireplace, a message in the form of an error code is displayed on the remote control.

Failure code	SYMPTOM	POSSIBLE CAUSE
F04/F06	No flame on the control burner for 30 seconds. Note: After three unsuccessful firing up sequences carried out within 5 minutes, the message F06 appears on the remote control.	No gas. Air in the gas system. No spark on the control burner. Reverse polarity on thermocouple wiring. The thermocouple is not in flame range. Inadequate gas burner control nozzle.
F06	Three unsuccessful firing up attempts in the fireplace carried out within 5 minutes.	No gas. Air in the gas system. No spark on the control burner. Reverse polarity on thermocouple wiring. The thermocouple is not in flame range. Inadequate gas burner control nozzle.
F07	Flashing battery icon on the remote control display.	Weak batteries in the remote control.
F09	The device is not responding. No control over the device.	During the process of pairing the remote control with the receiver, the button  was not pressed. The remote control and receiver have not been properly paired.
F46	The device is not responding. The device responds sporadically. No control over the device.	There is no or poor connection between the remote control and the receiver. No power supply to the receiver (low batteries). Low communication (damage to the main adapter, no communication between the remote control and the receiver).

## ***Environmental Protection***

All packaging elements in which the gas insert has been delivered should be disposed of in an appropriate manner. Due to the content of heavy metals, batteries are classified as hazardous chemical waste, so after use, they should be thrown into special containers for hazardous waste. If the operation of the device has ended, it must be disposed of. The user is obliged to pass the fireplace to the appropriate institution dealing in the recycling of this type of equipment.

## **Terms of warranty**

If the complaint is considered unfounded and does not result from a defect in the device, the Guarantor has the right to charge the Customer with the costs associated with the complaint. The use of fireplace insert, connection method to the chimney and operating conditions must comply with these operating instructions. It is forbidden to modify or make any changes to the design of the fireplace insert. The manufacturer provides a 2-year warranty from the moment of purchase of a refill for its efficient operation and a 5-year warranty on the concentric flue gas system supplied with the device. The buyer of the fireplace insert is required to read the fireplace insert operating instructions and these warranty conditions, which should be confirmed by an entry in the warranty card at the time of purchase. In the event of a complaint, the fireplace insert user is required to submit a complaint report, a completed warranty card and proof of purchase. Complaints can be submitted via the form on the website in the "knowledge and help" tab or by e-mail to the address [reklamcje@kratki.com](mailto:reklamcje@kratki.com)

Submission of the aforementioned documentation is necessary to consider all claims. The complaint will be considered within 14 days from the date of its submission. All modifications, modifications and structural changes of the insert cause immediate loss of the manufacturer's warranty.

### **Attention**

Installation and service of the device may only be carried out by a qualified technician with the necessary legal permissions. The complaint will be considered only if the customer presents a report on the installation of the device and a card with records of mandatory inspections. All of the above documents should be signed by a person performing service activities.

The warranty covers:

- efficient functioning of the fireplace;
- automatic gas control system
- seals for 1 year from the moment of purchasing the cartridge;
- complaints reported for fragrances within 6 months of installing the cartridge (documented by an entry in the warranty card).

The warranty is not covered:

- heat-resistant ceramics (glass, resistant to temperatures up to 800 ° C). Applies to any damage including soot or burn caused by the use of improper gas, discoloration, tarnishing and other changes due to thermal overload;
- decorative elements for lining the combustion chamber supplied with the device;
- all defects resulting from non-compliance with the provisions of the operating instructions, in particular those related to connecting the wrong type of gas to the device;
- any defects arising during transport from the distributor to the Buyer;
- any defects arising during the installation, installation and commissioning of the fireplace insert;

- complaints related to an incorrectly selected product (installation of a device with too low or high power in relation to the demand, supplying the device with the wrong gas);
- damages resulting from thermal overloads of the chimney liner (associated with the use of the liner not in accordance with the operating instructions).
- damage resulting from incorrect arrangement of decorative elements in the combustion chamber.

The warranty is extended for the period from the date of submission of the complaint to the day of notifying the buyer about the repair. This time will be confirmed in the warranty card. The device may only be repaired by a person with appropriate qualifications

Any damage resulting from improper operation, storage, unskillful maintenance, incompatible with the conditions set out in the operating and operating instructions and due to other reasons not attributable to the manufacturer, will void the warranty if these damages contributed to changes in the quality of the cartridge. During warming up and cooling down, the expansion occurs and the insert may make a cracking sound - this is a natural phenomenon and does not constitute grounds for making a complaint.

### **Attention**

This warranty card is the basis for the buyer to make free warranty repairs. The warranty card without date, seals, signatures, as well as with amendments made by unauthorized persons expires. Warranty duplicates are not issued !!!

In order to continually improve the quality of its products, Kratki.pl Marek Bal reserves the right to modify devices without prior notice.

The above provisions regarding the guarantee do not in any way suspend, limit or exclude the consumer's rights for non-compliance of the goods with the contract resulting from the provisions of the Act of 27 July 2002 on special conditions of consumer sales.

## THE INSTALLATION OF THE LEO SERIES HEATER PROTOCOL

Type of the appliance:

Model:

Appliance serial number:

Date of installation:

Details and signature of the seller:

Date of sale:

Installer details and type, number and expiry date of the relevant licenses:

### INSTALLER'S STATEMENT

I, the undersigned, declare that I have read this manual regarding the abovementioned space heater. The device is working properly and has been installed according to this manual.

Legible signature \_\_\_\_\_

### FINAL BUYER'S STATEMENT

I, the undersigned, declare that I have read this manual regarding the abovementioned space heater.

Legible signature \_\_\_\_\_

**THE INSPECTION OF THE LEO SERIES HEATER PROTOCOL**

Number and date of the inspection:

\_\_\_\_\_

Serviceman details, type, number and expiry date of the applicable licenses:

Comments:

Legible signature \_\_\_\_\_

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106

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