

EN

CERAMIC RADIANT HEATERS “SBC”

OPERATING AND MAINTENANCE MANUAL

Models:

SBC 2; SBC 4; SBC 6; SBC 8; SBC 10; SBC 12; SBC 16;
SBC 6+6; SBC 8+8; SBC 10+10; SBC 12+12; SBC30

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file name: EN.SBC_v2_1
date: Jan 2019



The Manual contains



General instruction.....	4
The rating plate.....	4
Safety using the heaters.....	5
General conditions of guarantee.....	6
Technical data.....	7
Main heaters components.....	7
Technical data radiant heaters SBC.....	8
Installation.....	9
Recommended height of radiant heaters SBC installation:.....	10
Main gas connection.....	11
Electric connection.....	12
Electrical connection options.....	13
Room ventilation.....	14
Service.....	15
Pressure regulation.....	16
Exchange nozzles.....	16
Starting.....	17
Description of functioning SBC models.....	17
Switching device:.....	17
Turn off the device.....	17
Troubleshooting.....	18

General instruction

Thank you for your choosing this Promienniki Gazowe Sp. z o.o. products. Promienniki Gazowe Sp. z o.o. aim to satisfy you, and we also hope that devices which are designed and produced according to range standard meet your expectations. This manual contains all information about installation, properly functioning and service for GAS RADIANT HEATERS. That is why you should read it carefully before installation. Please, keep this manual for future reference. Proper service and maintenance recommendations allow for long and productive performance. Each heaters is equipped with:

- rating plate with technical specification

The rating plate

											
Promienniki Gazowe Sp. z o.o. Błaszaków 1s; 26-220 Stąporków; POLAND tel.:+48 41 362 40 26, fax: +48 41 332 42 38											
Model:	SBC 2; SBC 4; SBC 6; SBC 8; SBC 10; SBC 12; SBC 16; SBC 8+8; SBC 10+10; SBC 12+12; SBC 30;										
Country of destination:	Poland	Category	II _{2E3+}								
Head load from H _i [kW]:	2.8; 5.5; 8,9; 11,7; 14,5; 17,4; 23,3; 23,3; 29,0; 34,8; 43,2;										
Type of gas:	BP P E	Voltage:	230 V								
Feed pressure (mbar):	37 37 20	Frequency:	50 Hz								
Nozzle pressure (mbar):	28 28 12	Power consumption:	18 W								
		Protection class IP:	40								
		Class NO _x	4								
S/N	<table border="1" style="width: 100%; height: 20px;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> </tr> </table>										
Radiator can be installed only in ventilated area. Read the manual before installing and running the heater											

pic. 1.



Read and understand this manual thoroughly before installing starting or servicing this equipment. The improper installation or using can cause serious damages! Keep this manual in a safe place in order to obtain information in case of incidental problems!

The manufacturer reserves the right to modify the devices without notification.

Safety using the heaters

This instructions booklet is an integral part and essential of the appliance and must be kept with care near the appliance for all future consultation. Read the instructions and warnings in this booklet carefully, as they supply important indications for safety, installation, use and maintenance. The improper installation or using can cause serious damages!

This device should only be used for the application for which it was made. Any other erroneous and unreasonable use should be considered improper and therefore dangerous. For the installation, commissioning and maintenance of this equipment, the user must strictly follow the instructions given in all chapters described in these operating instructions.

- After unpacking, inspect the unit for damages. Wrapped elements should be kept away from children.
- The packaging components and radiator itself should be kept away from children, as a potential threat to life and health,
- All gas heaters are reviewed and tested prior to distribution
- The rating plate which is on each device must be strictly observed.
- Any improvements and modifications which could change technical data should be reported to a trained representative of Promienniki Gazowe company.
- In case malfunction, the heater must be disconnected from the main source of gas and power.
- Every change must be shown on the rating plate .The heater should only be installed by trained personnel,
- Our technical service is always at your disposal and can offer advice and information concerning heater operation.
- **Promienniki Gazowe** does not take responsibility for damage to devices or people, as a result of improper use of heaters.
- The appliance must not be used by children or invalid persons without supervision.

Instruction: Every appliance installation must be satisfied the valid laws and standards. These laws refer to the gas and electrical installation respectively the ventilation (special specifications refer to park houses, airplane hangars etc).

General conditions of guarantee

Promienniki Gazowe gives 12 months guarantee as of the date of first use, for products which are installed by an authorized service, but not longer than 18 months from the date of sale. The period of guarantee given by Promienniki Gazowe does not include materials delivered by others manufacturers.

The guarantee only covers devices, which are defective due to manufacture.

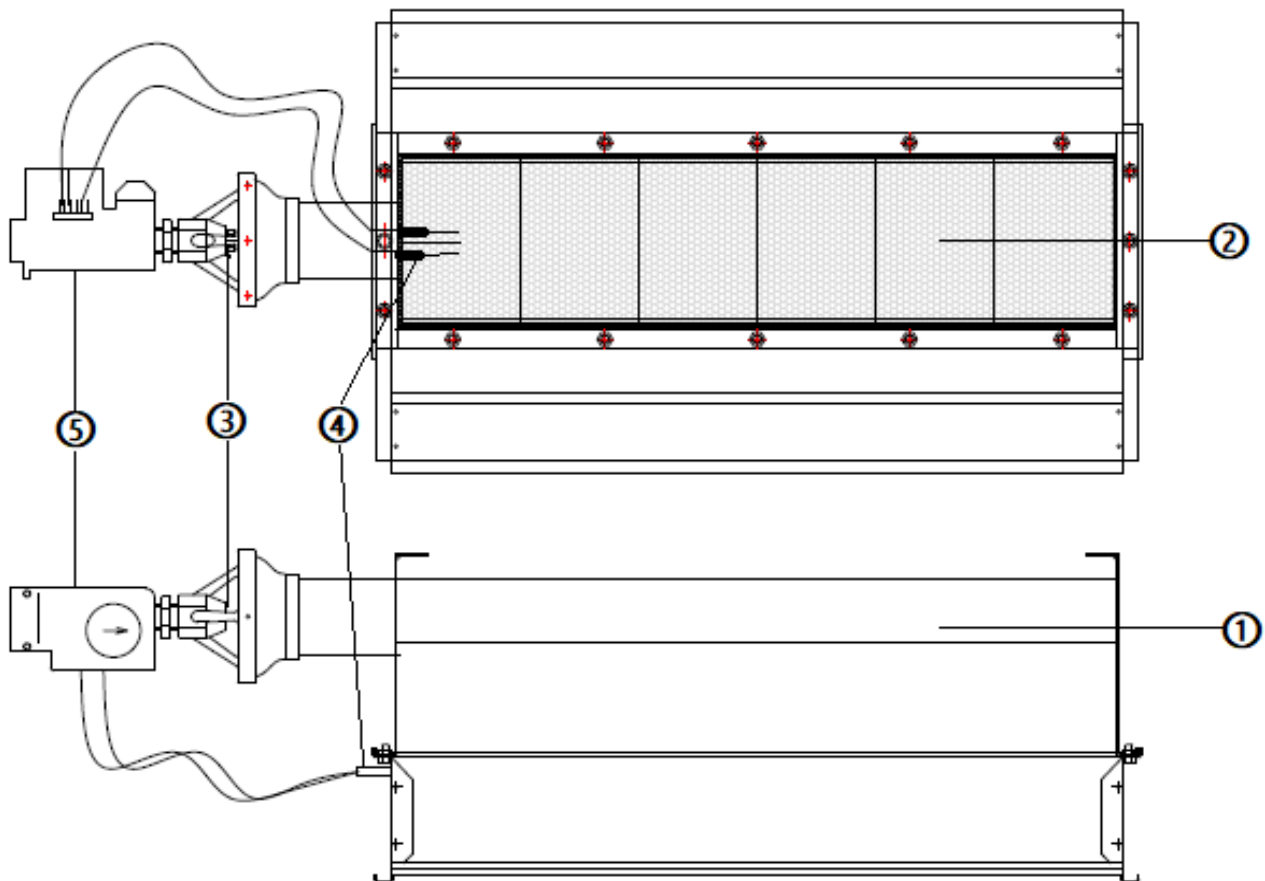
The guarantee does not include improper and careless use of devices.

Technical data

Main heaters components

1. Aluzinc burner with Venturi tube,
2. Ceramic plates with micro-holes as a radiation surface,
3. Removable nozzles depending on kind of gas natural gas or propane-butane;,
4. Safety ignition with flame sensor,
5. Solenoid valve with gas regulator and electronic controller.

Optionally the heaters can be equipped with hose with fittings.



pic. 2

Technical data radiant heaters SBC

Model	SBC 2	SBC 4	SBC 6	SBC 8	SBC 10	SBC 12	SBC 16	SBC 6+6	SBC 8+8	SBC 10+10	SBC 12+12	SBC 30
Quantity of plate	2	4	6	8	10	12	16	12	16	20	24	30
Nominal output Hi [kW]	2,8	5,5	8,90	11,70	14,50	17,40	23,30	17,40	23,30	29,00	34,80	43,20
Ø nozzle for natural gas E [mm]	1,6	1,9	2,5	2,8	3,1	3,6	4,0	2×2,5	2×2,8	2×3,1	2×3,6	3×3,2
Working pressure for natural gas E [mbar]	20											
Pressure on nozzle natural gas E [mbar]	12											
Gas consumption natural gas E [m ³ /h]	0,30	0,58	0,94	1,24	1,53	1,84	2,46	1,84	2,46	3,07	3,68	4,57
Ø nozzle for PB gas [mm]	1,0	1,3	1,6	1,8	2,0	2,2	2,5	2×1,6	2×1,8	2×2,0	2×2,2	3×2,0
Working pressure for PB [mbar]	30—50											
Pressure on nozzle PB [mbar]	28											
Gas consumption PB [kg/h]	0,22	0,43	0,70	0,93	1,14	1,36	1,82	1,36	1,82	2,27	2,72	3,38
Ø nozzle gas Propane [mm]	1,1	1,4	1,7	1,9	2,1	2,3	2,7	2×1,7	2×1,9	2×2,1	2×2,3	3×2,1
Working pressure for Propane [mbar]	30—50											
Pressure on nozzle Propane [mbar]	28											
Gas consumption Propane [kg/h]	0,22	0,43	0,69	0,91	1,13	1,35	1,81	1,35	1,81	2,25	2,70	3,36
Electrical connection [V]	230											
Radiating surface [cm ²]	121	243	486	972	1214	1457	1943	1457	1943	2429	2915	3643
Surface to heat[m ²]	20-25	25-30	35-45	45-55	55-65	60-80	80-100	60-80	80-100	90-110	100-120	125-155
Weight [kg]	5	8	11	13	15	17	21	23	26	29	32	43

Table 1.

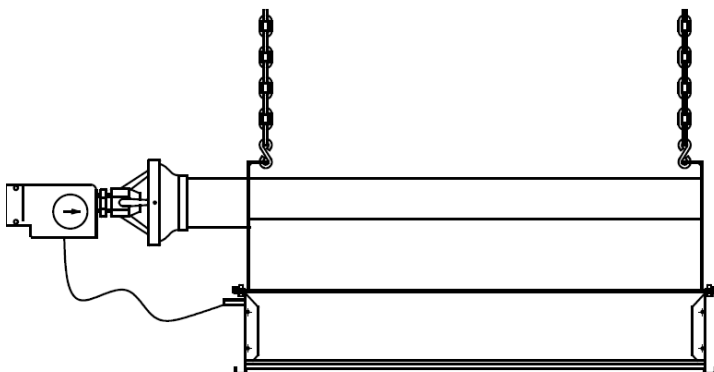
Maximum temperature of heater Surface - 900° C

Installation

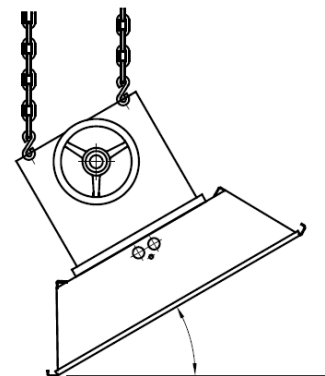
During first start it is important to make preliminary reviews what guarantee proper functioning of devices. It is necessary to do activities mentioned below:

1. Check if gas installation is air tight and if diameters are proper.
2. Check if gas pressure is the same as it is written on rating plate
3. Check if gas valve is properly connected with radiator.
4. Check if polarity of system F/N is marked on connection and if there is ground
5. Check if support and chain are strongly installed and a bolts are screwed down

Radiator can be installed on walls, pillars by arms screwed down to heaters construction in prepared place with screwed holes under M 8 bolts, or by a chain to a ceiling using supports type "S".



pic. 3



pic. 4



ATTENTION: it is strictly forbidden to supply the gas circuit with pressure exceeding 60 mbar. This may damage the valve.

Recommended height of radiant heaters SBC installation:

Model	Height [m]
SBC 2	3.0 – 3.5
SBC 4	4.0 – 5.0
SBC 6	4.0 – 5.0
SBC 8	4.0 – 5.0
SBC 10	4.5 – 5.5
SBC 12	4.5 – 5.5
SBC 16	5.0 – 6.0
SBC 6+6	5.0 – 6.0
SBC 8+8	5.0 – 6.0
SBC 10+10	5.0 – 6.0
SBC 12+12	5.0 – 6.0
SBC 30	7.0 – 9.0

Table 2.



NOTE: The table includes recommended values. Actual conditions may impose exceptions from the above values.

During installation you have to pointed out minimal distance from heater to the wall in case if the wall would not be made of refractory materials or it would not be high temperature resistance of radiance. Minimal distance are stated in table above:

Model	The distance between the wall and the radiator [m]			
	Roof	Floor	Front	Side
SBC 2	1.5	3.0 – 3.5	1.0	1.5
SBC 4	1.5	3.0 – 3.5	1.0	1.5
SBC 6	1.5	3.0 – 3.5	1.5	1.5
SBC 8	1.5	3.5 – 4.5	1.5	1.5
SBC 10	1.5	4.0 – 5.0	2.0	1.5
SBC 12	1.5	4.0 – 5.0	2.0	1.5
SBC 16	1.5	5.0 – 6.0	2.0	1.5
SBC 6+6	1.5	4.0 – 5.0	2.0	1.5
SBC 8+8	1.5	5.0 – 6.0	2.0	1.5
SBC 10+10	1.5	5.0 – 6.0	2.0	1.5
SBC 12+12	1.5	5.0 – 6.0	2.0	1.5
SBC 30	1.5	7.0 – 9.0	2.0	1.5

Table 3.



NOTE: The table includes recommended values. Actual conditions may impose exceptions from the above values.

Main gas connection

The radiator can be fed by different sort of gas, so before connection you have to ensure that fed gas is the same as it is written on rating plate. Every radiator should be equipped on cutoff ball valve and flexible gas connection. You should check if gas pressure is appropriate adjusted, to avoid damage when using gas pressure is to high.

1. **MODELS SBC:** diameter of flexible gas connection to SBC heater:

Device type SBC is equipped in pressure reducer (max 50 mbar) and in holes for manometer after and before reducer to measurement pressure. **Regulator is not installed on heater. You should behave according to the instruction to connect the reducer to heater after taken it out from a box.**



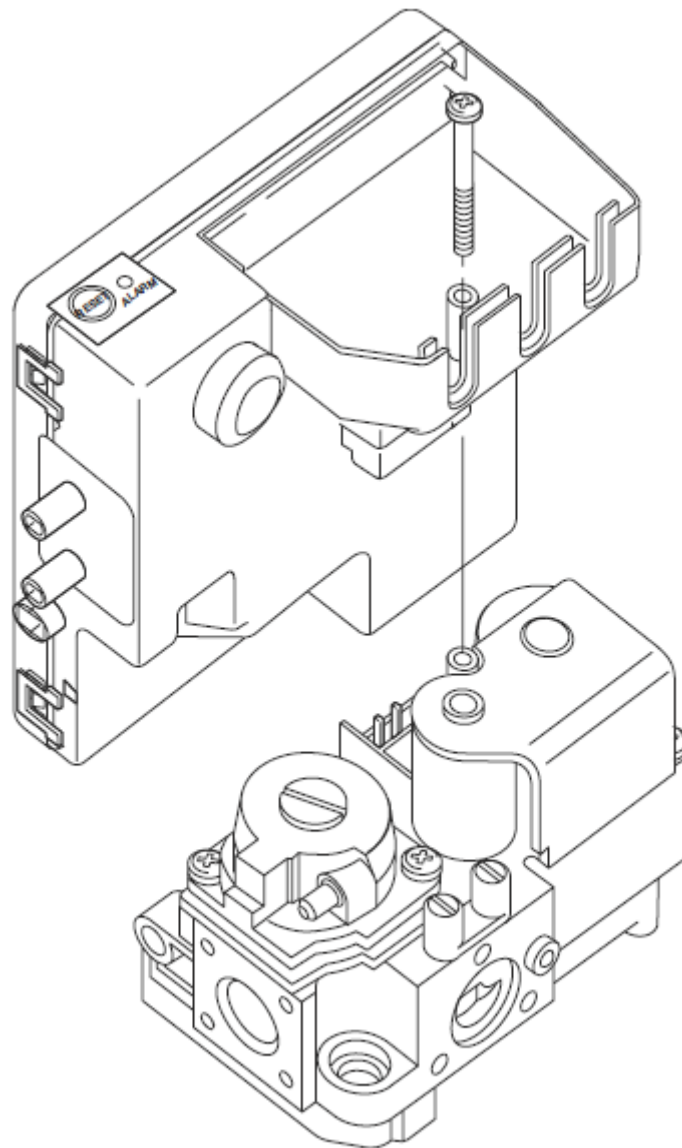
NOTICE:

All devices are tested with using type of gas which is written on rating plate.

Electric connection

The heater needs electrical feed with voltage 230V/50Hz. Flame control valve is located on electric valve

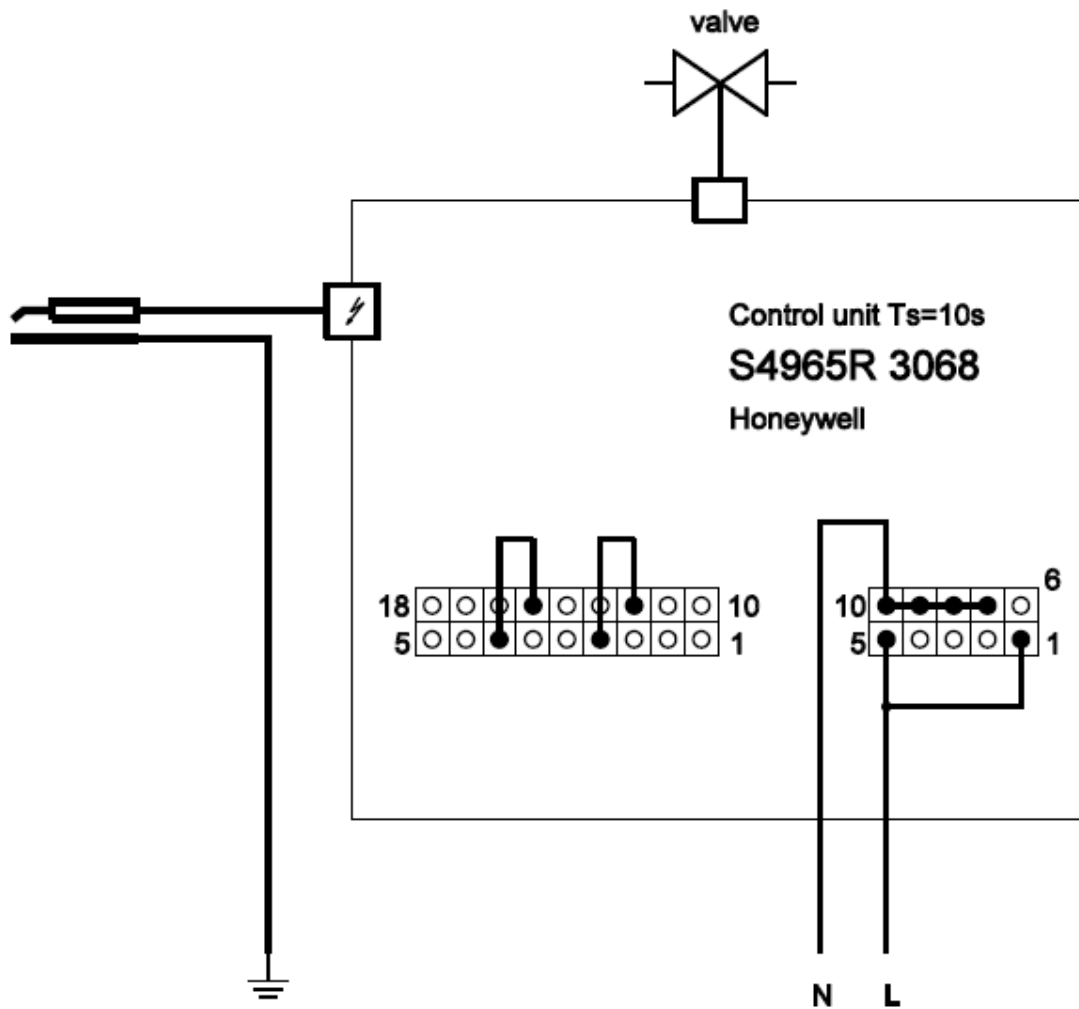
Devices should be also equipped in control unit **STMP** to switch on and switch off the heater. Control unit is not delivering with heater by **Promienniki Gazowe Sp. z o.o.**



pic. 5

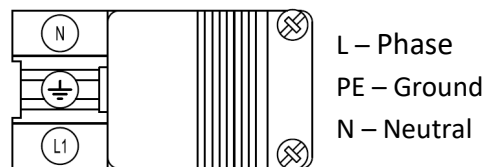
Electrical connection options

Electrical connection without feedback lamps



pic. 6.

In this case, three-wire cables should be used for connection, and the connection plug has three connection pins.



Important: to avoid problems it is important to uphold polarity of system F/N with advisable polarity of connection. To proper functioning heaters SBC and safety using you need a ground.

Room ventilation

IMPORTANT:

Gas installation must be made according to regulations in force, and gas heaters must be installed in ventilated rooms.

Products of gas burning stay in room where the radiator is installed.

Check if the room where the radiator is working, is well ventilated;

To provide suitable ventilating system, you should make holes in external walls or provide mechanical ventilation. Capacity of ventilation must be calculated according to local requirements.

Example calculation of ventilation

$$V_{\text{air}} = \Sigma Q_{\text{nb}} \times L$$

where:

V_{air} - volume air to exchange

ΣQ_{nb} - total heating power installed in room

L - exchange factor ($\geq 10 \text{ m}^3/\text{h}/\text{kW}$)

The heaters can't be installed in:

1. Bedrooms, rooms with showers and bathrooms.
2. In rooms lower than 12m^3

Service

SBC models by Promienniki Gazowe needs special service, however a few easy operations provide better efficiency and longer activity

If the radiator is installed in polluted room Promienniki Gazowe recommendation is to clean a burner by blow through with compressed air in direction of gas inlet.

If the heater is working, switch it off and wait until it will get cold before blow through. After finish heat season it is recommended to review all parts of radiators to avoid improper functioning in next season.



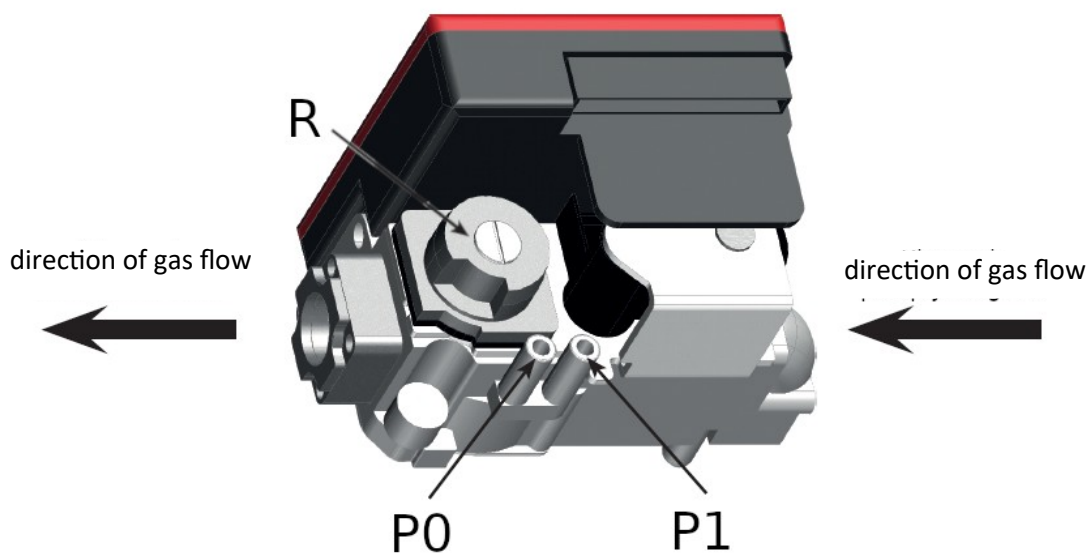
IMPORTANT: each service must be made by trained representatives of installations company or directly by Promienniki Gazowe company. Before review you need to be sure that the devices is cut off from gas and power feeding.

Pressure regulation

Important:

before first startup you need to check if the gas pressure is proper as it is written on rating plate. you need to behave according to instruction below:

1. Unscrew a bolt of electric valve (PO) and put in proper manometer.
2. Remove hood from pressure regulator (R), and turn to time when value of pressure will be the same as it is written on rating plate
3. Screw out manometer and screw in a bolt
4. Cover a regulator (R) by a hood and tighten it.



Pic. 7.

Exchange nozzles

All our devices are tested with natural gas methane or liquid gas before realization an order Pressure characteristic and type of gas using during test are always written on rating plate located on radiator in visible place.

In case when feeding gas is different you need to order supplementary suite of exchanging nozzles, given model of radiator and type of gas. Exchange nozzles must be made by trained representatives.

Starting

Description of functioning SBC models

Devices are automatically equipped in flame control sensor, which is in separate box and electric valve feeded by a duct with voltage 230V/50Hz.

- After switch on the heater, it starts sparking and the electric valve is opening in the same time
- The sensor monitoring the ignition and when heater is ignited, sparking is switch off
- In case when the flame will be detected, after 20 sec the radiator will be locked. Restart the heater by cut off electric power for min 20 sec, and you have to repeat start-up.
- To switch off the heater, you have to cut off the device from electric power by a switch located in controller

Switching device:

1. Open gas valves gas,
2. Switch on entire power button panel
3. Set thermostat device to the desired temperature
4. Press the power button for selected radiators.

Turn off the device

1. Set room thermostat to the minimum,
2. Turn off power for individual radiators
3. Turn off main power switch
4. Close the gas valve from the device.

If all devices must be switched off for a long time, in addition, we recommend disconnecting the power supply from the control panel and close the main gas valve

Troubleshooting

DEFECT	REASON	SOLUTION
1- Radiator lights up, but exploder sparking and blocking device.	a- Flame sensor is located too close or too far from radiate surface b- generator is damaged	a- Check if flame sensor is close enough to radiate surface (4-5mm). b- Check polarity F/N ground
2- Burner of radiator works poorly.	a- Insufficient quantity of gas b- Too low pressure of gas	a- Check pipeline diameters b- Check if pressure meets standards written on rating plate
3- Burner works with higher power.	a- Too high pressure of gas b- The burner or plate is dirty c- Dirty or damaged plate	a- Check gas pressure and reduce it by properly configuring pressure regulator b- When the burner is cold blow it through and a radiate surface by compressed air c- Exchange plates
4- The radiator can not switch on.	a- No electrical power b- No power to electric valve c- Electric valve has feed but there are problems with coil.	a- Check voltage on connection b- Exchange duct c- Exchange coil
5- Electric valve opening but the radiator is not switching on, and after 20 sec the heater is blocked.	a- Starting electrode is not sparking because of wrong length between electrode and a plate surface b- Electric damage c- Starting electrode sparking because ceramic non-conductor has crack.	a- Shift electrode closer or further from metal side Proper length – 3-4mm b- Check electrode connections c- Exchange electrode and a sensor
6- Heater switch on, but electrode not sparking and blocking device.	a- Air in gas duct b- Insufficient quantity of gas	a- Try again after 20/30 sec b- Check if there are no other problems.