



Manual

Name: KIPI air heater



Models:

24 kW,

30 kW,

50 kW,

70 kW,

100 kW,

150 kW,

200 kW,

250 kW

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Symbols:



Warning. Indicates that the user must read with an operating manual where you can find important information such as cautions and warnings that cannot be included for various reasons on the medical device.



Moving parts symbol. The moving parts symbol indicates areas of the analyzer where moving parts may cause physical injury. Do not operate the analyzer with open covers.



Warning under voltage.



Hot surfaces, do not touch.



Follow the instructions for use. Indicates the need for the user to read the instruction manual.

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1. General information

This manual for the KIPi air heater, which is automatically fueled with solid fuel, pellet, constitutes the Technical and Operation Documentation. Document is an integral part of the device. Detailed analysis of the instructions will allow the user to learn about the structure of the device, installation and operation tips. Respecting the manufacturer's instructions in the manual will ensure correct and safe operation of the heater.



Connection and first running of the heater, as well as possible installation of the burner

must be performed by an authorized and qualified service center



The manufacturer is not responsible for any damage caused as a result of defective installation, inconsistent with these instructions.

Works related to the installation and use of the heater should begin with:

- checking the heater's housing in case of damage caused by transport,
- verification of the content of the delivery, both in terms of the presence of all components and their compliance (comparison with nameplates),
- getting acquainted with the operating instructions for the heater, burner and regulator.

The KIPi air heater may only be used for its intended purpose. Any other use will be considered improper by the manufacturer and dangerous. The heater is an integral part of the ROTARY KIPi burner and the regulator ecoMax 920 TOUCH. The heater and its components are under warranty. Specific warranty conditions are given by the manufacturer in this manual, with warranty card included.



The manufacturer is not liable for damages resulting from the selection of others components than those included in the heater kit - in particular another burner, feeder or regulator.

The manufacturer allows the use of a different type of container than the suggested one KIPi tank, but minimum feeder capacity is maintained (indicated in the burner operating manual). The heater operating manual provides general information about the burner and regulator. Detailed information on these components has been attached.



In the event of a breakdown or incorrect operation of the device, turn it off immediately and disconnect the electrical supply. Any attempts to repair it yourself will break manufacturer's warranty conditions. Any repairs on the heater and its components should be performed by the manufacturer's authorized service, using original spare parts.

2. Description and purpose of the device

The KIPi air heater is a heat generator powered automatically with solid fuel, pellets. The device has been designed for internal use to heat the air. The principle of operation is based on use forced air circulation, which is provided by a centrifugal blower fan. The air stream passing through the heater absorbs heat energy through circulations near the heat source. As a result, the air leaves the heater at elevated temperature (ryc. 1.) .

The heat is generated as a consequence of burning pellets in the combustion chamber. By means of a centrifugal blowing fan mounted in the lower part device, air is blown into the device. Air is taken in directly from the room with the heater 3 . The heater uses only fresh air, or a mixture of fresh air and air returning from heated rooms.

The heat energy of exhaust fumes is transferred to the injected air through the process natural and forced convection. Air and fumes are separated in airtight channels, as a result there is no pollution of the heated air. After losing heat energy, exhaust fumes are removed through a duct connected to the chimney system. The diameter of the chimney is important, which must be large enough to provide effective exhaust gas removal. Ash, created as a result of burning, is discharged to the ash pan drawer from where it can be removed easily (see cleaning the ash pan). Heat is transferred through adjustable air outlet duct (located in the upper part of the heater), distributing air directly to the sides or to other rooms through supply ducts equipped with dampers.

After reaching the required air temperature in the room, the heater when heating one room:

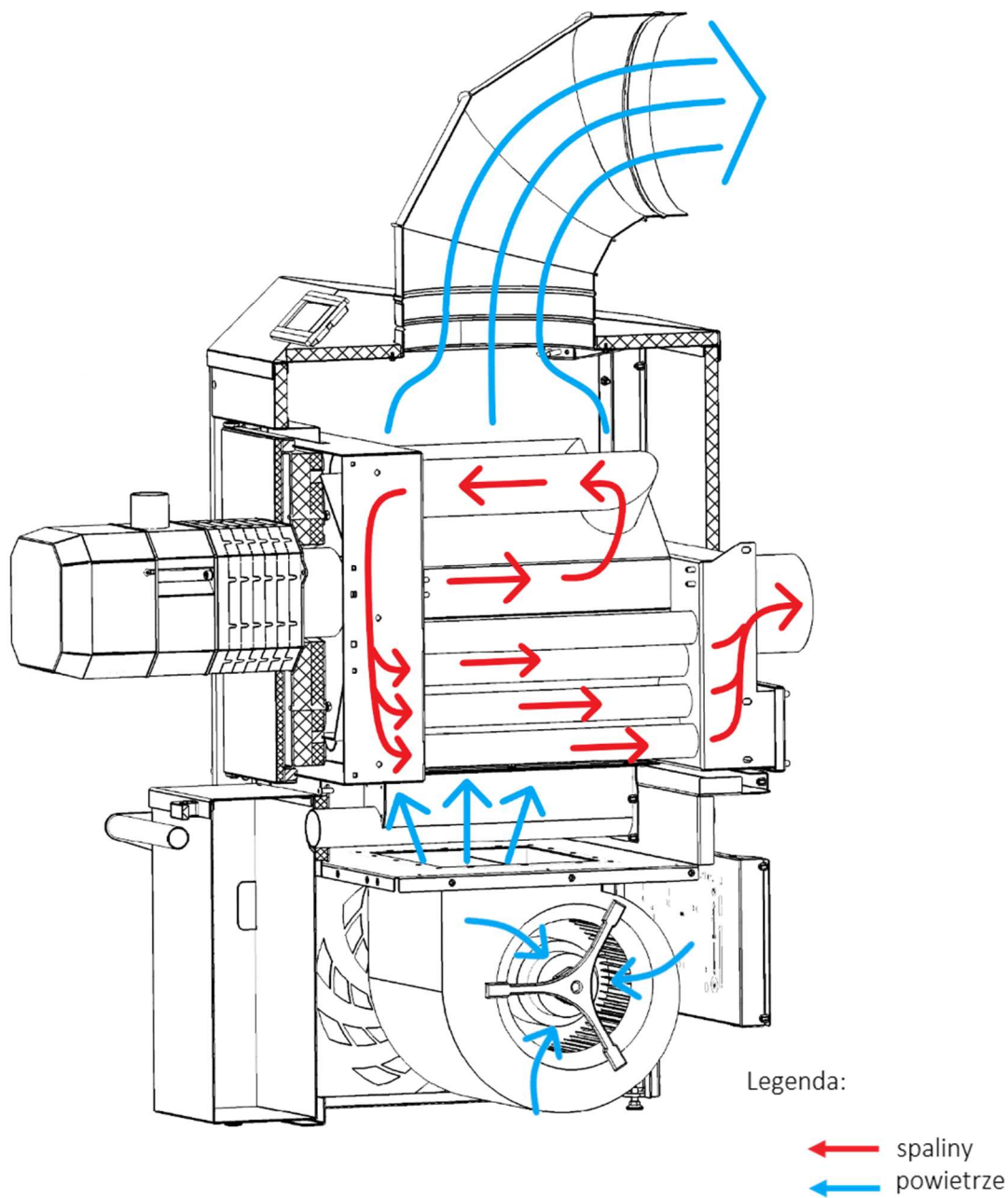
- using a thermostat - it will turn off,
- not using the thermostat - it will continue to work,

when heating several rooms:

- using a thermostat in each of them - it will turn off,
- when using a thermostat in several rooms - dampers

installed on distribution ducts to these rooms will remain closed, at the same time the heater will continue to heat rooms without thermostats,

- without using the thermostat, in any of the rooms - it will continue the work.



Ryc. 1. Diagram of air flow through the heater (hot – read, blue – cold air)

3. Fuel specification

The burner, which is an integral part of the air heater, is designed to burn wood biomass in the form of pellets. Recommended for best performance the use of certified pellets meeting the following quality requirements (Table 1).

Fraction	granules
----------	----------

Diameter [mm]	6±1,8±1
Length [mm]	3,15 ÷ 40
Dust content [%]	≤ 1
Bulk density [kg / m3]	≥ 600
Moisture [%]	≤ 10
Calorific value [MJ / kg]	16,5÷19
Ash [%]	≤ 0,7

Tab. 1. Quality requirements of pellets intended to power the heater.

In case of changing the fuel batch it is necessary to perform the "feeder test".

This action is important for the optimal operation of the heater. When refilling the fuel in the tank, particular attention should be paid to undesirable elements in the form of mechanical impurities, e.g. rock fragments. Any solid contamination, regardless of its size, may damage the heater, including the pellet feeder, burner or ash removal system, thus leading to the failure of the entire device..



The manufacturer is not responsible for any resulting damage from failure to follow the above recommendations.

4. Construction of the heater

The KIPi air heater consists of the following components

(see Table 2, Fig. 2).

	name of the element	<i>marking</i>
Counterflow exchanger	Combustion chamber	A1
	Flame tubes of the 2nd line	A2
	Reversing chamber	A3
	Flame tubes 3 pass	A4
	Exhaust outlet chamber	A5
	Flue	A6

Ash removal system	Ash removal spiral	B1
	Gear motor	B2
	Ash removal pipe	B3
Cleaning	Rear cleanout cover	C1
	Door	C2
	Ash container	C3
	Ash pan cover	C4
Insulation	Heater thermal insulation	D
Accessories	Torch	E1
	Blower fan	E2
	Air outlet elbow	E3
	920ecoMAX driver panel	E4
	920ecoMAX driver module	E5
	Burner thermal insulation	E6
	Mounting flange	E7

Tab. 2. KIPi air heater components.

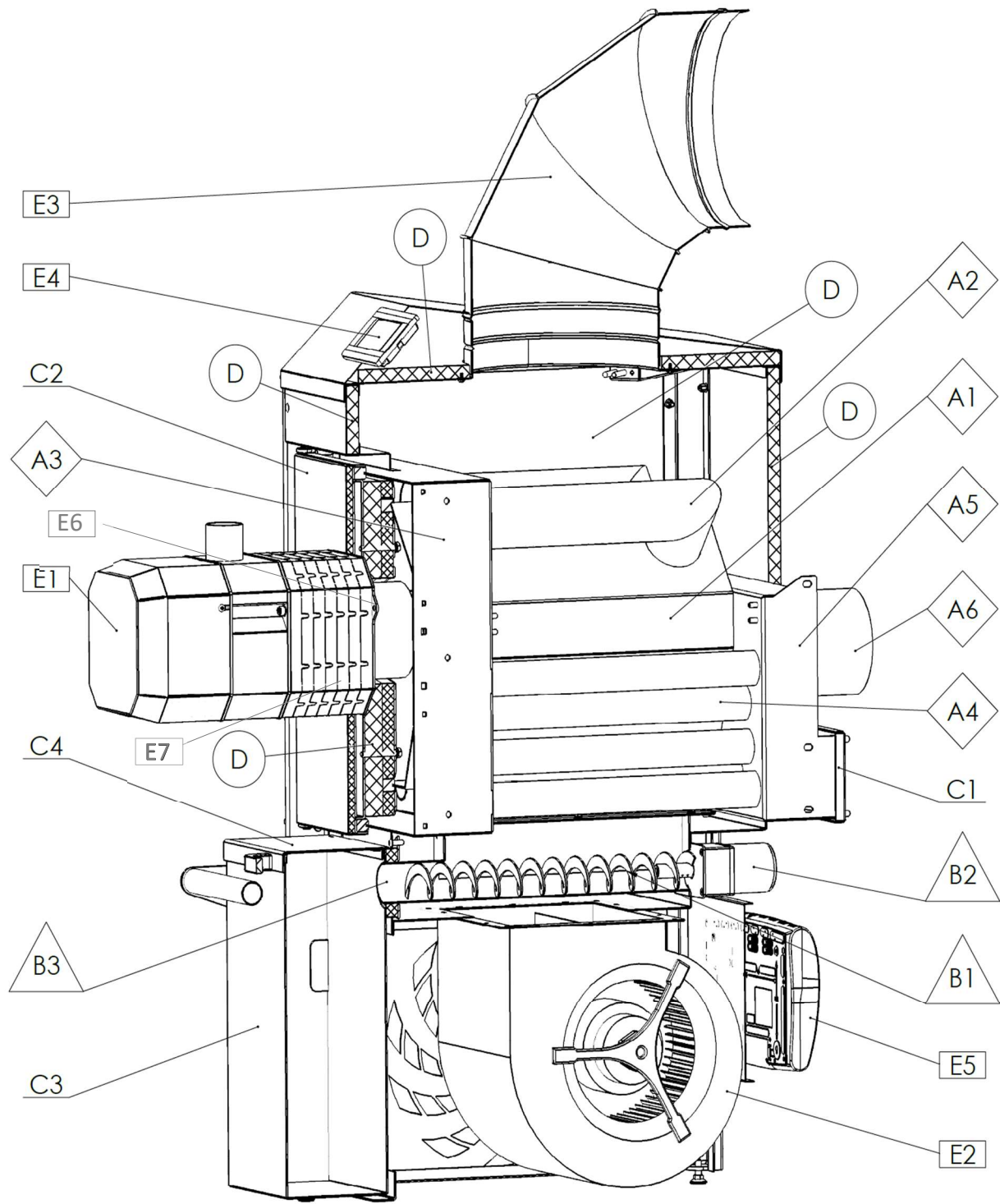


Fig. 2. Construction of the KIPI air heater.

5. Component parts

The heater is supplied as a complete air heater kit (see Figure 3).

The set consists of::

1. heater body, with a built-in exchanger, automatic ash removal mechanism, radial blower fan, as well as removable elements such as:
 - 1.1. air outlet duct,
 - 1.2. removable ash pan

2. ROTARY KIPI burner, along with: zewnętrznym podajnikiem paliwa,
 - 2.1. connection elbow,
 - 2.2. 2.2. flexible spiro pipe,
 - 2.3. 2.3. mounting flange,
 - 2.4. 2.4. the 920 Touch regulator

cube fuel container adjusted to the heater

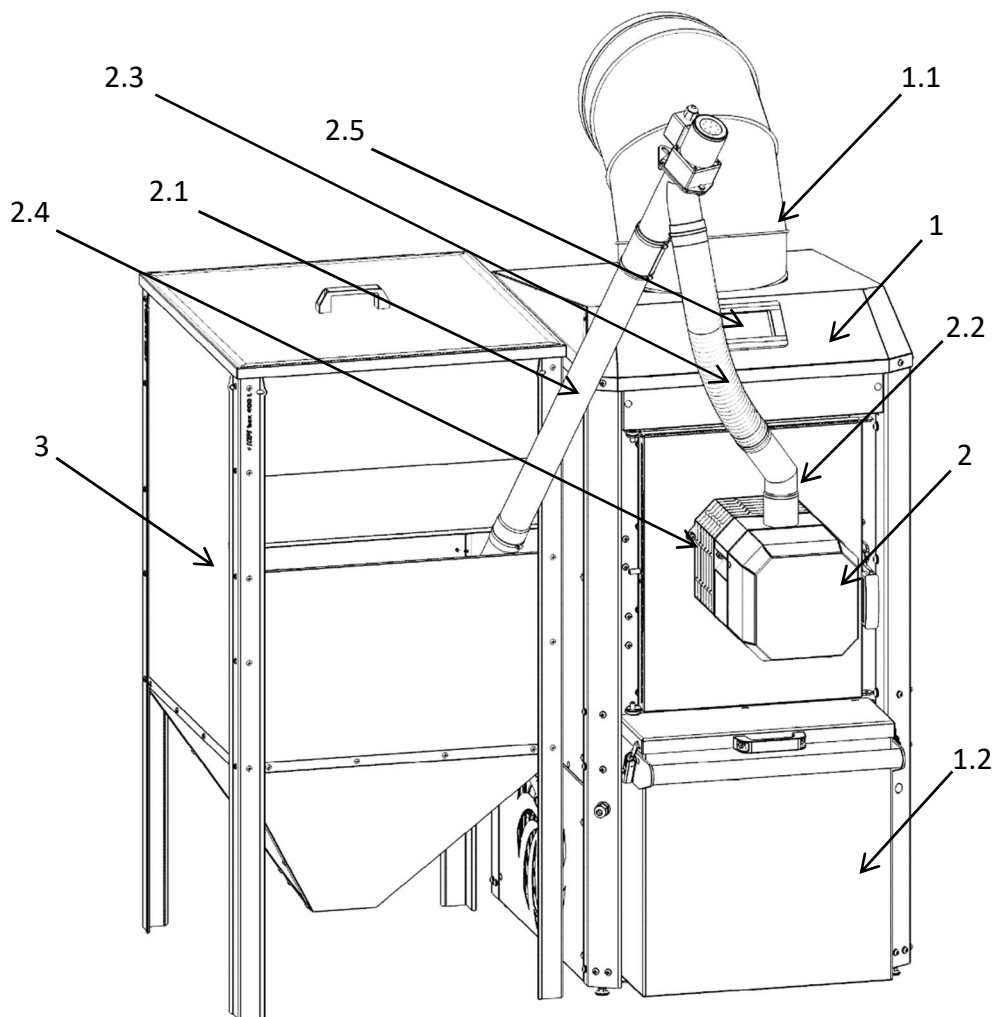


Fig. 3. Components of the KIPi air heater kit.

6. Safety systems used in the heater

The KIPi air heater is equipped with a number of components that contribute to the safety system of the entire device. The safety system consists of components of the burner, controller and the heater body, which include a photocell, a burner temperature sensor, a flexible pipe in the pellet feeding system, an exhaust gas temperature sensor, a screw preventing the heater door from opening, a digital exchanger temperature sensor, a mechanical temperature sensor.

Photodetector

A photodetector, otherwise known as an optical flame sensor, is a burner protection element, designed to prevent, among others, overheating of the burner and the device in which it is mounted. The photocell is responsible for lighting the burner in the absence of flame detection. Firing up is a 2-minute cycle consisting in supplying the burner with a moderate amount of fuel and switching on the igniter. If the ignition still fails, the cycle is repeated 3 times. In a situation where the ignition does not take place, the regulator will announce an error, in which the further operation of the burner is impossible.

Burner temperature sensor

The second element protecting the burner is the temperature sensor in the blower chamber. This sensor is responsible for stopping the fuel movement from the container to the combustion chamber. The break will take place when the fuel inside the screw feeder ignites, at the same time the burner will switch from operating mode to blanking. The output temperature for sensor activation is 90°C. Sensor switching on a permanent alarm is triggered (the alarm can only be removed by the user).

Flexible pipe in the pellet feeding system

In addition to the sensors, the burner safety system uses a structural one safety component. The fuel feeding system consists of two screw feeders, the so-called external and internal

(stoker) connected by a section of flexible pipe made of a material with limited thermal resistance. In the event of a flashback from the burner to the feeding system, it prevents ignition of the fuel in the main container..

Mechanical temperature sensor

The sensor, also known as the STB thermal protection, is mounted on the sensor tightly in the heated air outlet duct. If the air temperature exceeds 92.5 °C, the sensor will knock out a special button installed in the housing of the device and turn off the heaters. The construction of the sensor allows it to work even in the absence of mains power or in case of damage to the regulator. The STB protection is classified as mechanical protection because restarting the heater can only take place after pressing the sensor button that has been knocked out.

Outlet temperature sensor

Another element of the safety system of the regulator that operates the heater is the outlet temperature sensor. The sensor should be tightly installed near the hot air outlet. A wide range of temperature detection allows the user to accurately monitor the temperature of the outgoing air

Mechanical protection of the heater door

The heater body is equipped with a structural safety element, which is a screw preventing the opening of the heater door on which it is mounted there is a burner (see figure 4). It is physically impossible to open the door without first unscrewing the screw, to prevent unnecessary openings. The screw should only be disassembled for cleaning internal components devices..

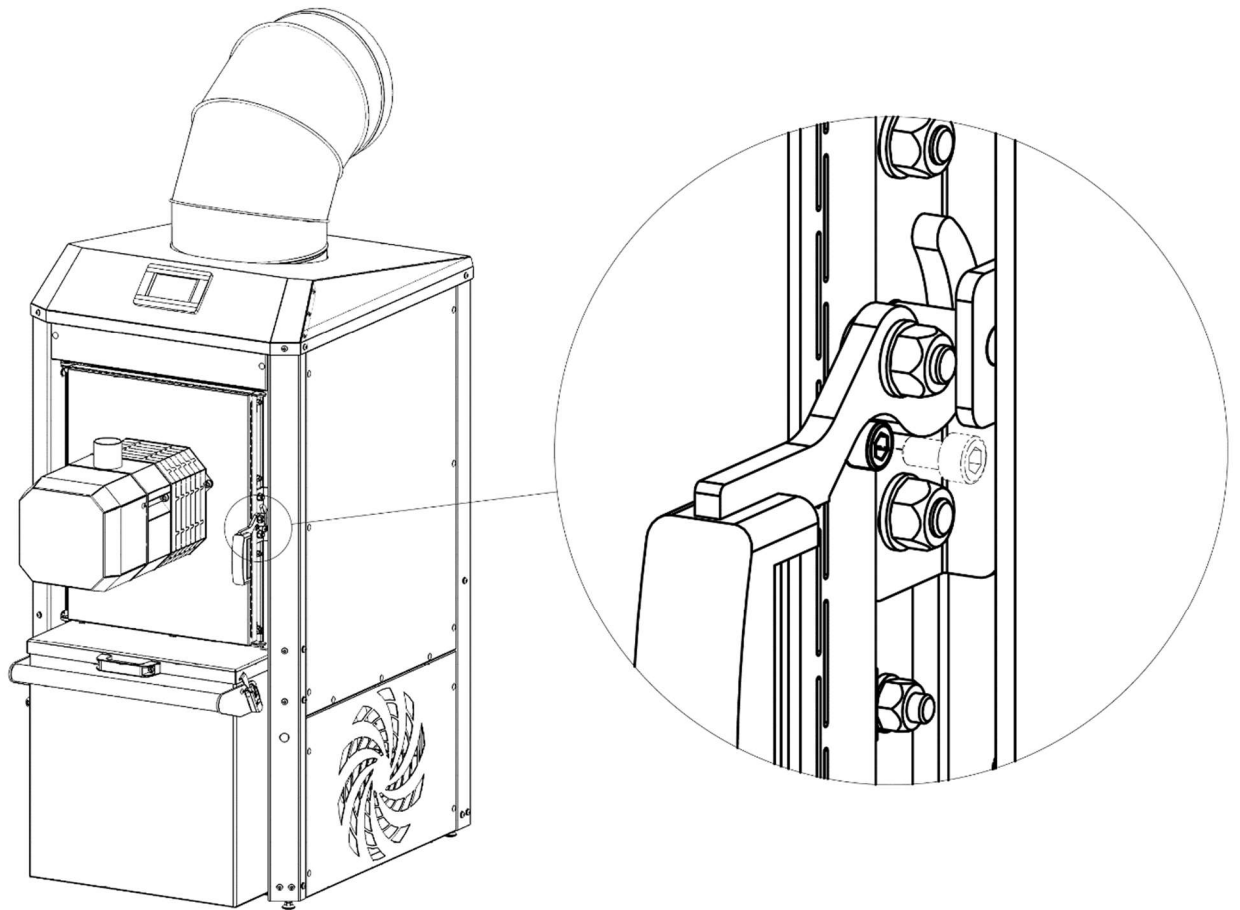


Fig. 4. Location of the mechanical protection of the door.

Digital exchanger temperature sensor

Sensor mounted on the surface of the heater to protect the device against overheating. After the exchanger has reached the limit temperature of 400 °C on the controller will activate a message in the form of an alarm. When the alarm is on, the device immediately switches from the operating mode to the extinguishing mode, and it is stopped fuel feeding - switching off the external feeder, extinguishing the burner, shifting the fan speed to higher efficiency and opening all air dampers. The alarm is maintained until the exchanger temperature drops by the hysteresis of 15 °C relative to the alarm activation temperature. The heater is restarted automatically after the alarm stops.

The KUPI air heater is a heating device which, despite the use of numerous safety systems and guidelines for safe use, there is a potential risk of burns or fire. It is recommended that users follow basic safety precautions before taking any action and exercised extreme caution.

7. Transport

The KIPi air heater can be transported as a compact set or without burner and hopper. The heater must be transported in a vertical position, and it is recommended that the entire outline of the heater is within the pallet.

During transport, it is necessary to properly secure the device against shifting and tilting both on the surface of the pallet and on the vehicle platform (Fig. 5). It is recommended that

to protect the heater during transport, as well as loading and unloading, protects the device against mechanical damage and unfavorable environmental conditions. Lifting and lowering the heater body should be carried out with the use of transport handles and slings, using mechanical lifts or cranes (see Fig. 6).).

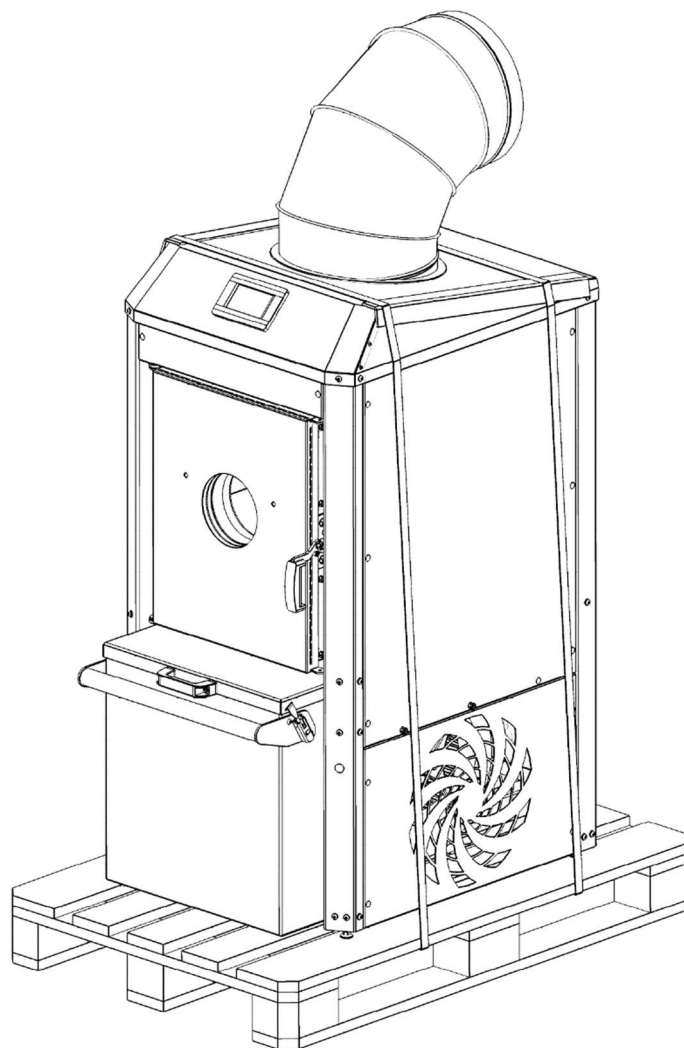


Fig. 5. Instructions for securing the heater body during transport.

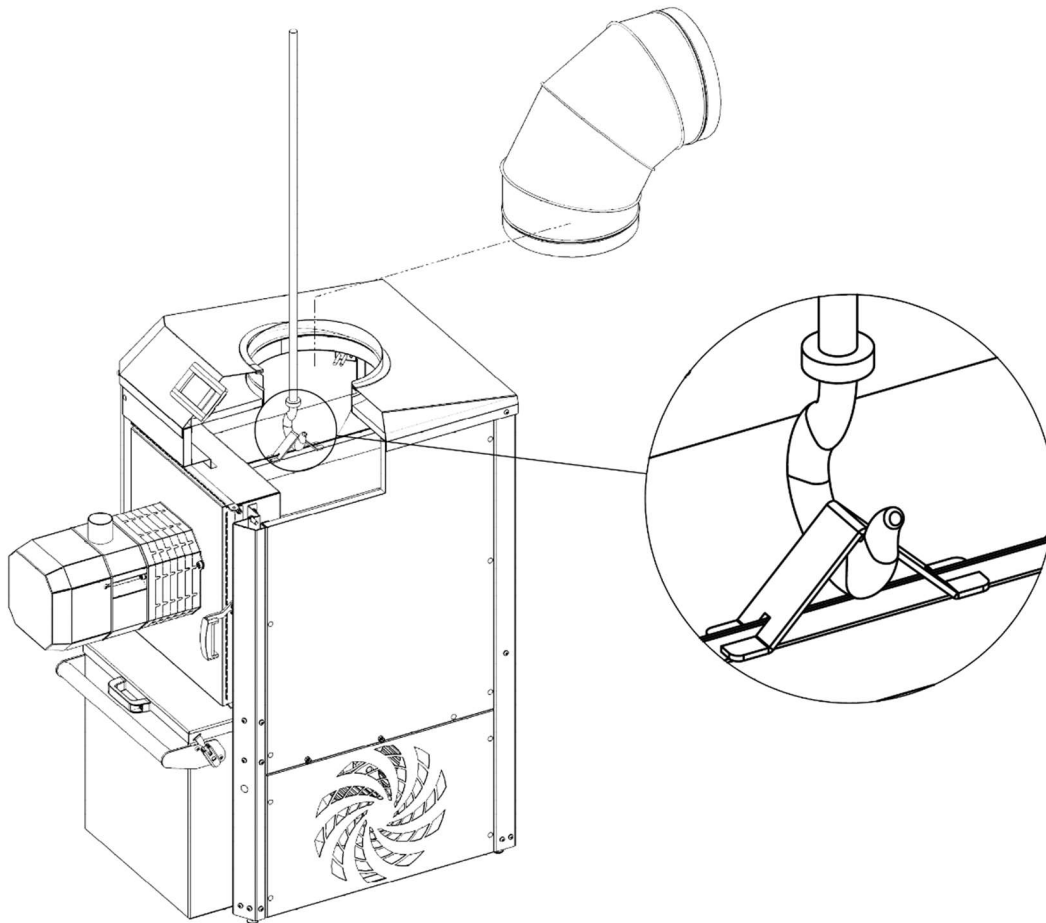


Fig. 6. Instructions for lifting and lowering the heater body.

Upon receipt of the device, check the delivery for possible damage and its completeness. Objections must be immediately reported to the supplier or the shipping company responsible for insuring the goods. In the event of damage to the device during transport, please contact the manufacturer to remove the defects, it is not excluded that the device must be returned to the



manufacturer.

The manufacturer is not liable for damage caused during transport.

8. Mounting

Installation of the device at its destination should be in accordance with the manufacturer's recommendations. During installation, it is recommended to observe the following recommendations:

-The location of the device should allow free access to the heater from all sides. Compliance with the minimum mounting distances is essential to carry out all kinds of works related to operation and service or maintenance of the device. The minimum installation distances are shown in Table 3.

orientation relative to the device	<i>designation in Fig. 7.</i>	minimum mounting distance
from the side wall on which the tank is placed	A	30 cm
from the side wall where there is no tank	B	50 - 70 cm
from the service side	C	100 - 120 cm
from the rear wall	D	100 cm
from the ceiling	E	30 cm, the height of the room should not be less than 2.3 m

Tab. 3. Minimum mounting distances

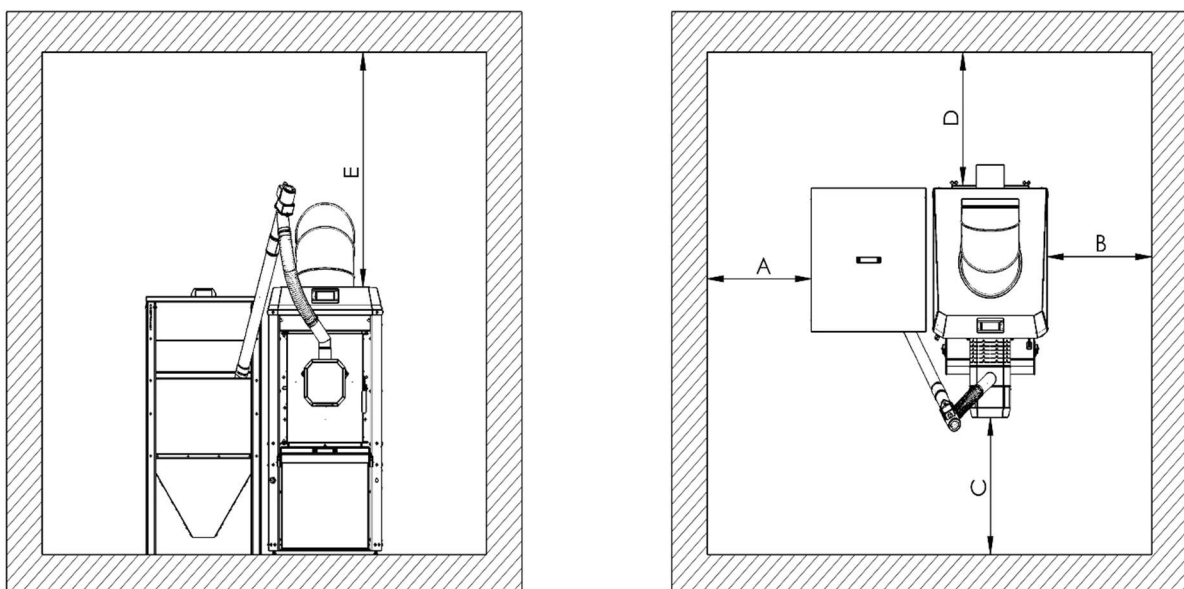


Fig. 3. Minimum mounting distances.

- The surface on which the heater is to be placed should be made made of non-flammable materials with strength proportional to the weight of the device. The heater should be carefully leveled after placing it in its final location.
- When planning the location of the device, provide space for electricity supply cables and flue gas discharge channels.
- In order to ensure high comfort of use and efficiency of the device, it is recommended to take into account any obstacles in the assembly work in the room, such as pillars, and that the air flow is not directed directly at people..

The sequence of assembly works

Work related to the installation of the heater should be carried out in the following order:

1. Unpacking the device and checking if it is complete and not damaged in transport,
2. Placing and leveling the device at its destination,
3. Installing the burner. Work related to the possible assembly of the burner is limited to fix the burner with screws to the door of the heater (fig. 8).

The burner should have a spacer plate installed and should include thermal insulation in the set. After installing the burner, connect the round multi-pin plug connecting the controller with the burner. Detailed information and technical data are specified in the burner instruction manual enclosed with the heater..

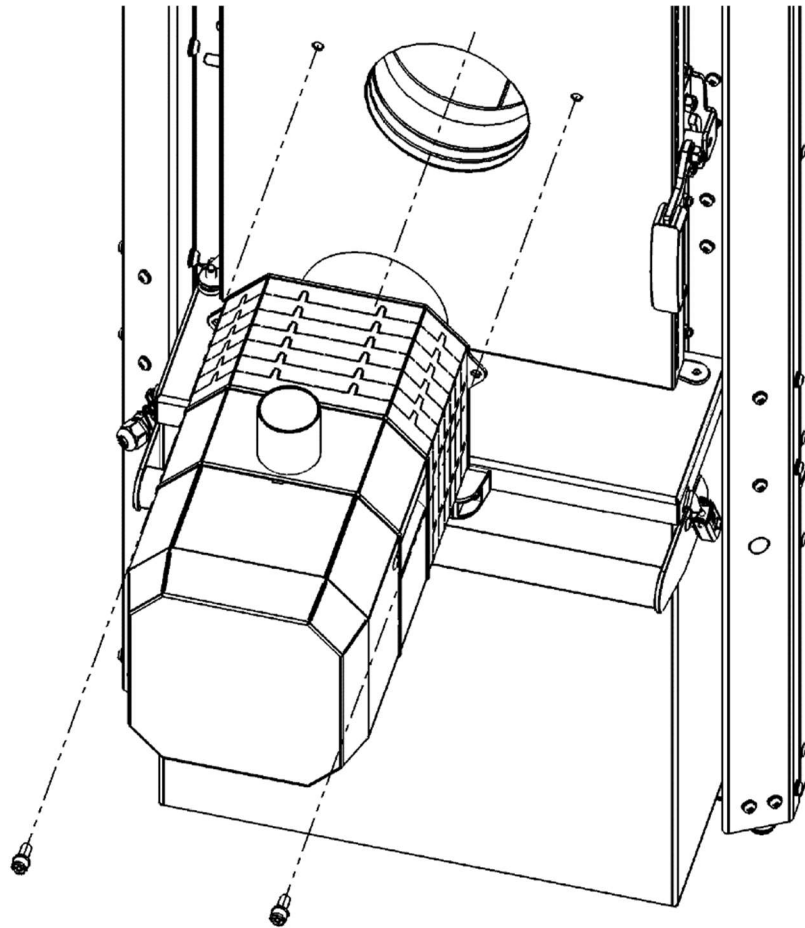


Fig. 8. Instructions for mounting the burner to the heater.

Installation of the hopper. In order to achieve high comfort of use of the heater, it is worth analyzing the location of the fuel tank. The side on which the container is located may be of great importance during the subsequent refueling and the operation of the heater itself. Tray supplied it comes in cardboard packages, the number of which depends on the capacity of the tank. The tank should be assembled according to instructions (see figure 9). Detailed installation instructions for the pellet hopper are delivered with the device.

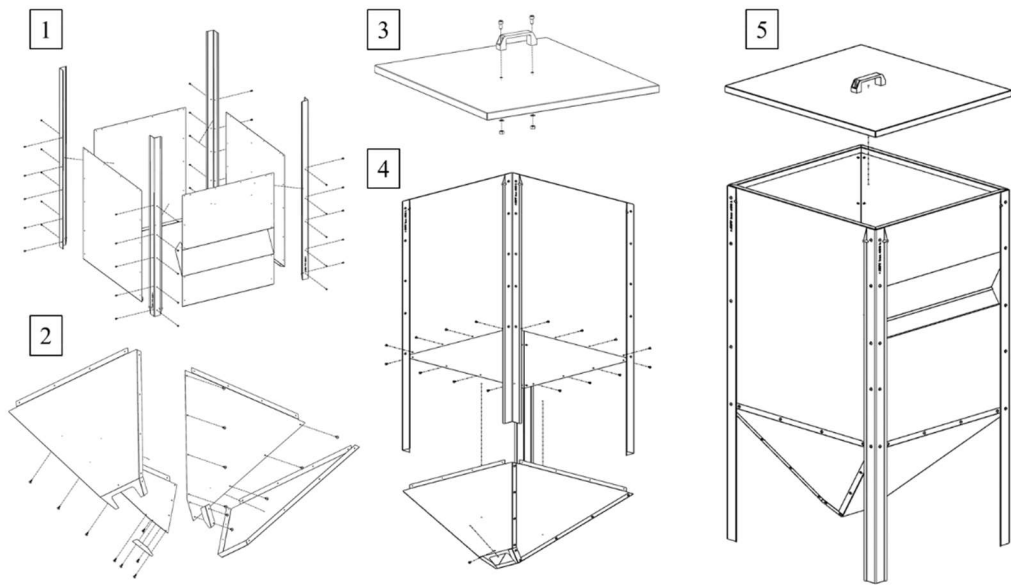
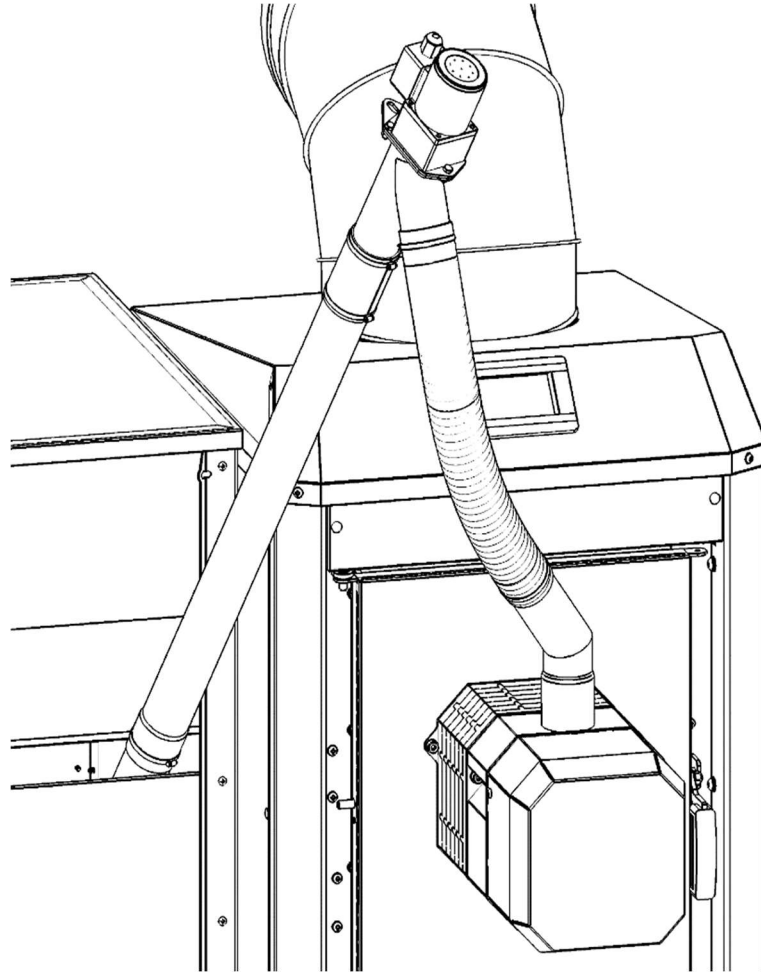


Fig. 9. Instructions for assembling the pellet tank.

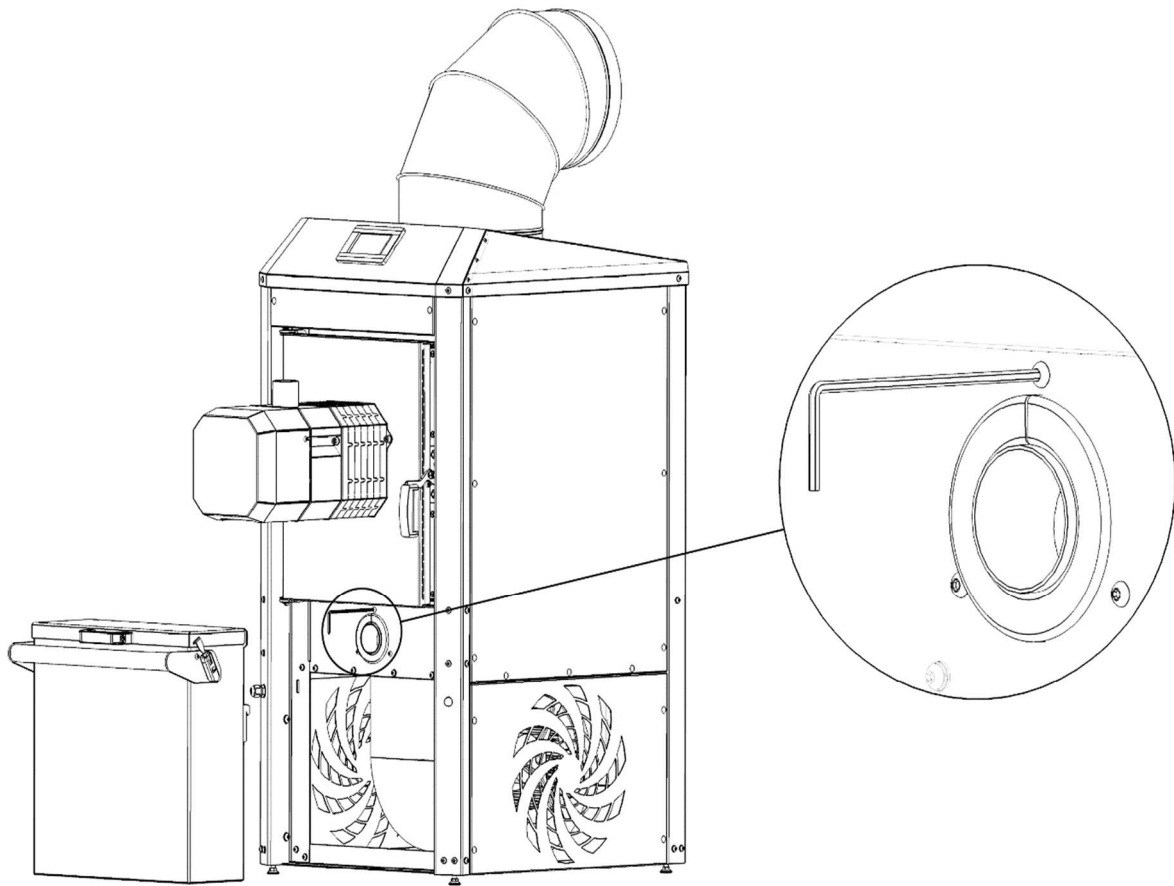
- 1 Assembly of the feeder. The external feeder is usually delivered in parts, its assembly consists in connecting the gearmotor with the spiral that is placed in the delivery pipe connected with the so-called truncated pipe. The feeder should form a single unit, consistent with that presented in Fig. 10. Further work is related to inserting the feeder into the hole in the side wall of the feeder (as shown in Fig. 10.). Of great importance for the correct operation of the feeding system is the correct settings of the feeder in relation to the tray. After positioning the external tray in the pellet container, it remains to connect the feeder with the burner using the flexible spiral pipe included in the set and connect the fuel feeder supply cable into the corresponding socket in the burner..



1. Dig. 10. Instructions for connecting the pellet feeder to the burner.

Adjusting the seal of the automatic ash removal system. Correct tightness of the ash removal system will ensure its efficient and proper operation. The adjustment consists in tightening / unscrewing the screw located at the outlet of the ash removal system to the ash pan (see Fig.

11.).



2. Dig. 11. Instructions for adjusting the tightness of the dust extraction system.

Completion of assembly works. After carrying out the above assembly works, call a service technician to carry out the first start-up.

9. Installation

Work related to the installation of the device must be performed by authorized persons, in accordance with the manufacturer's instructions. Faulty installation can lead to damage to property, as well as injuries to people, for which the manufacturer is not responsible.

9.1 Connecting the heater to the electrical system

The inspection work prior to installation of the equipment must include also checking the electrical installation in terms of the required voltage (230 V), proper location of the phase conductor (L) and efficiency of the protective contact in the socket. The KIPi air heater is adapted to be supplied from an alternating current network 230V / 50 Hz, having a protective conductor. For connecting the power cord and associated devices, such as a room regulator, there is a connection strip driver (see figure 31). Technical details are specified in the enclosed operating manual of the controller.

9.2 Connecting the heater to the chimney installation

The flue gas is discharged to the outside via a flue gas pipe that is routed directly through the outer wall or roof. Installer directly before starting work, he is obliged to inspect the chimney flue in terms of patency, the presence of a chimney liner made of acid-resistant steel and the measurement of the chimney draft. The chimney duct must comply with the applicable standards and regulations. Only one device can be connected to one chimney (see figure 12). The heater should be connected to the chimney system in accordance with with applicable regulations. The connection to the chimney should be made with a steel sheet profile with an appropriate cross-section, shape and maximum length of 1 meter. It is particularly important to seal the flue gas outlet from the heater and the chimney outlet. The connection should have a slope towards the heater. Correct selection of the chimney parameters must ensure the required flue gas draft in the range presented in the technical parameters (see tab. 5) for a specific heater model. Chimney draft within the specified range, it will ensure correct operation of the device in negative pressure. Will protect is a heater against the possibility of combustion products getting into the boiler room and CO concentration in the combustion chamber.

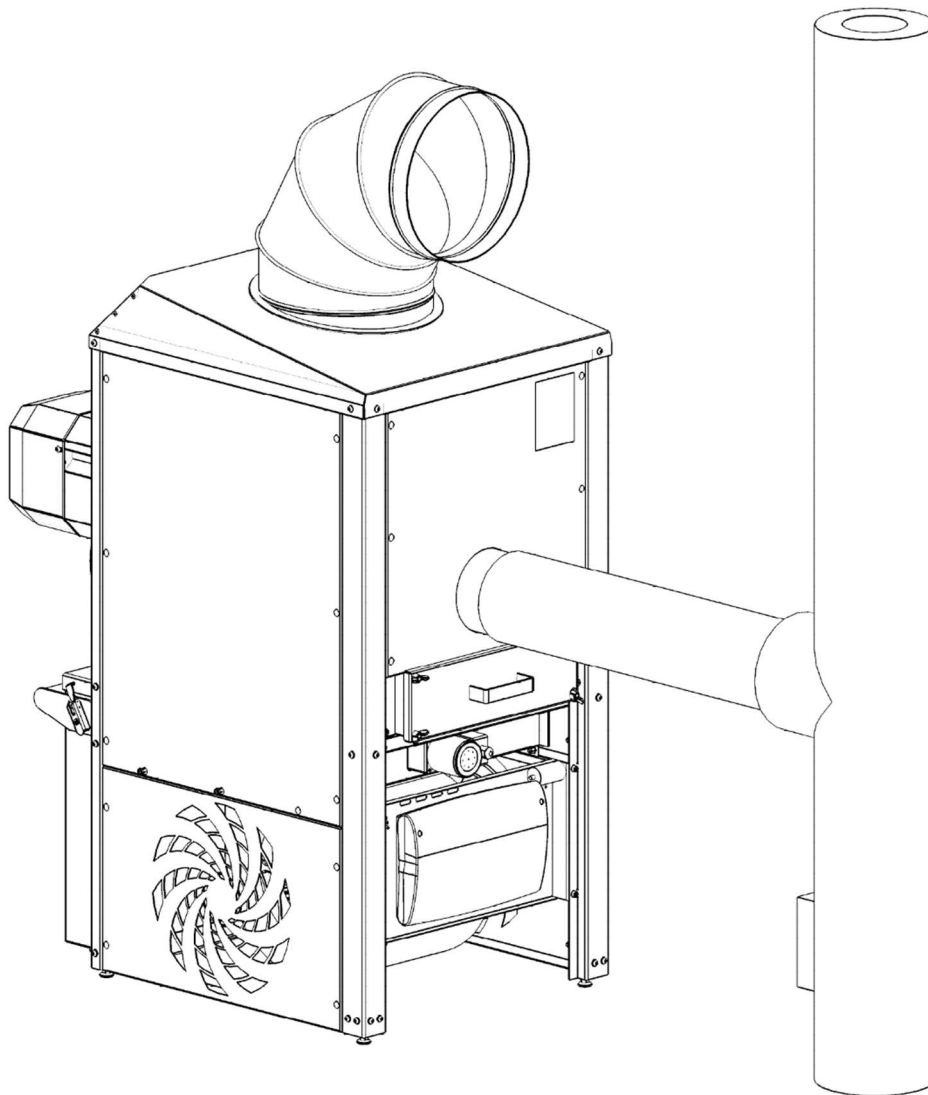


Fig. 12. An example of the heater's flue outlet to the chimney.

9.3 Verification of the ventilation system

Combustion air is taken from the room in which the heater is located, therefore another important element at the installation stage is the verification of ventilation in the room. The room in which the heater is to work must have a gravity supply and exhaust system. Installation can not drive for negative pressure in the room. According to the regulations, the ventilation network must ensure the supply of combustion air in the amount of not less than $10 \text{ m}^3 / \text{h}$ per 1 kW of nominal heat output of the furnace and not less than $20 \text{ m}^3 / \text{h}$ per person intended for permanent stay in a given room. Ventilation openings should be secured with a steel mesh, and their design should prevent blockages..



ATTENTION! It is necessary to provide a sufficient supply of fresh air to the room where the heater is located. Insufficient air can lead to incomplete combustion and the formation of carbon monoxide.

After completing the installation, it is necessary to verify the tightness of the chimney system, the contact surfaces of the fan and cleaning holes, and to check the correctness of connection to the chimney and to the electrical network. Another important element ending the installation stage is the test of the device's components, which allows for any corrections to be made before starting the heater.

10. Running

10.1 Preparing the device for the first start

Activities related to the preparation of the device for operation should be performed according to the following diagram:

Check the filling level in the hopper - fill with fuel if necessary.

1. Fill the fuel feeder with pellets until the fuel starts to pour into the burner. To activate this function, press the "MENU" button in the controller, then use the knob to select "Manual control" from the displayed list, press the knob on this option, and in the menu, select the "Feeder" option with the knob, press the knob - the inscription will change from OFF (turned off) to ON (turned on) - at this moment the external fuel feeder will be turned on - the filling mode continues

2 minutes, if the delivery tube is not completely filled, repeat the operation. Filling can be interrupted at any time by pressing the knob. Exit the mode

filling is done by pressing the "EXIT" button.

2. Any regulators connected to the controller should be set to their maximum values or shorted by default.

3. By pressing the "MENU" button, you can set the parameters of the burner and heater operation. All settings and operating parameters are described in the attached controller manual.

4. Press the regulator knob and select the "YES" option - the regulator will be turned on.

10,2 First running of the burner.

The manufacturer requires the first start-up to be performed by an Authorized Installer at the User's request.

The scope of the first launch includes:

- checking the correct installation and operation of the device,
- burner adjustment,
- checking the correct operation of the device's safety devices,
- filling in the warranty book.

The scope of the first launch does not include:

- removing defects and faults in the installation.



For the correct operation of the system, follow the sequence of actions given by the manufacturer.

The sequence of works related to the first start-up

1. Assemble the whole set of the device according to point 8.1. sequence of assembly works
2. Connecting the set.
 - Check if all wires and cables are connected properly,
 - Check the correct tray settings in relation to the tray.
 - Tilting the feeder at a smaller angle increases the feeder efficiency.
 - Tilting the feeder at a greater angle reduces the feeder efficiency.
3. Filling the external feeder - should be carried out in accordance with one from the diagrams below (see Figs. 13, 14.).

- Start the function and wait until the external feeder is filled with pellets. Activation of this function will have to be repeated 2-3 times depending on the angle of inclination of the feeder relative to the feeder.

- After filling the entire feeder, wait for the auger to feed the pellets within: 2-3 minutes for burners with a power from 16 kW to 50kW (in order to fill the feeder correctly).

For this purpose, it is best to place a container under the downpipe into which the pellets will fall. Pay attention to the work of the auger - it must work continuously..

Main menu – manual operation – auger on/off

Dif. 13. Diagram of I filling the external feeder.

Main menu – boiler settings – power modulation – auger – auger filling - start

Dig. 14. Diagram II of filling the external feeder.

Feeder test. The test lasts 6 minutes (Fig. 15), during which the snake feeds the pellets in continuous operation. Accordingly, the parameters of pellet dosing during the burner operation are set. Before the test, make sure that the feeder is completely filled with pellets. Place a container under the filled device into which the pellets will fall. All pellets that have fallen into the container should be weighed. The result is the weight of the pellets, which we will then enter as the fuel value in the test (Fig. 16).

Dig. 15. The scheme of how to carry out the feeder test.

Main menu – boiler settings – output modulation – auger – fuel mass in test

Fuel mass in test. Enter the value of the fuel from the test – the result obtained by doing the feeder test in accordance with Fig. 15.

Main menu – boiler settings – present boiler temperature – enter the temperature you want the boiler reach and maintain

Dig. 16. Scheme of recording the fuel mass in the test.

Burner running

Main menu – boiler settings – present boiler temperature – enter the temperature you want the boiler reach and maintain

Dig. 17. Diagram for starting the burner.

Fan power set

Main menu – boiler settings – output modulation – max blow – in output
20

Dig. 18. Diagram of airflow power setting

21

Setting the fan

The heater has 5 fan speeds - fan speeds that can be changed on the controller's main screen - the tile on the right. The degree of airflow regulates the speed of the main heater fan - blower fan. In the settings, we regulate how fast the fan turns on a given gear

(see Figure 19.). The fan settings for each speed determine its operation, with the burner modulating to the preset airflow temperature. In case of reaching the set temperature, the fan will start to reduce the power. If we want to increase the air flow through the heater, we should increase the fan blowing (see Fig. 20).

In the 5th gear, the maximum rotation of the blowing fan is obtained, this gear is used if the desired temperature is to be reached as quickly as possible.

Main menu – settings – value of ventilataion gears - ventilation power gear 1/2/3/4/5

Dig. 19. Diagram of power settings for specific fan speed

Main menu – settings – programmed power of exhaust fan – choose + for higher power, - for lower power

Dig. 20. Scheme of setting the set power of the blower fan.

Setting temperature

¹ Wpisujemy wartość temperatury jaką chcemy aby kocioł osiągnął i utrzymywał.

² W przypadku sterownika manualnego – przyciskamy duży, okrągły przycisk i uruchamiamy regulator, a w przypadku sterownika z dotykowym panelem wybieramy ikonę ON/OFF

If you want to change the set temperature of the heater, i.e. the air temperature at the outlet of the heater, follow the diagram below (see figure 21).

Main menu – device settings – output modulation 0 (-/+ increase/decrease)

Fig. 21. Diagram of airflow preset temperature setting.

Operation of the heater with a thermostat requires the connection of a temperature sensor, the sensor should be placed in a representative point. The maximum distance of the cable is 50 m. Connecting the sensor is connected with the selection of the built-in thermostat function (see Fig. 22). Thanks to this it is possible to regulate, among others work schedule of the thermostat and hysteresis within this sensor. The built-in thermostat function allows the heater to operate according to the room temperature, and after reaching the set temperature, the heater turns off.

Main menu – device settings – thermostat choice – built-in

Fig. 22. Diagram of enabling the thermostat function.

The KIPi heater can work in a multi-thermostat system, with up to four circuits. Operation in a multi-thermostat system requires the use of mechanical ventilation valves. You can assign a built-in thermostat to each vent valve (see Fig. 23) or to optional wired / wireless ecoSTER / ester X Series thermostats.

Main menu – device settings - air dampers – damper 1/2/3/4 – built-in

Fig. 23. Diagram of enabling the thermostat function in a multi-thermostat system.

11. Operation

Activities related to the operation of the heater concern both its everyday use and maintenance work related to keeping the device in the best condition. This section presents the manufacturer's recommendations for safe operation of the heater and the cleaning instructions for its individual components.

11.1 Safe operation conditions

In order to ensure the user's safety, the following rules must be observed:

- The device does not require constant observation during operation..



- **During the burner operation, it is forbidden to open the door of the heater with the burner installed in it.**



- **It is strictly forbidden to use any means to kindle the fuel.**



- The heater must be operated by trained adults exploitation and handling of media in accordance with the recommendations of the manual handling.

- The boiler room should be kept clean and no flammable objects should be stored there.

- The room with the heater and the fuel should be equipped with fire-fighting equipment.



- The heater has rotating elements - it is forbidden to put hands, fingers or other objects into the rotating elements during their operation.

- It is forbidden to interfere with the heater's automation systems and other electrical devices installed in it.



-The heater is a heat generator, and therefore some of its elements may become hot - be especially careful in contact

with the device.

- It is not allowed to place objects on the heater surface.



- The heater should only be used as a complete device with all safety systems in working order.

- Periodic maintenance works on the device and its components should be carried out, as well as the condition of the installation should be checked.



- Before starting work related to the maintenance of the device, the heater and its accessories must be disconnected from the electrical network.

- The air circulation in the ventilation grille system should not be obstructed.

- If necessary, use only powder or snow extinguishers.

11.2 Heater maintenance

In order to extend the life of the heater and its components, maintenance works should be carried out periodically. Thorough cleaning of the heater translates for failure-free operation of the device, its efficiency and effectiveness. Lack of cleaning may translate into: to disturbance of the combustion process.

11.3 General guidelines

When carrying out maintenance work, please follow the instructions below:



- Activities related to the maintenance, adjustment or repairs of the heater should be performed on the cooled device and disconnected from the power supply!



- **Before starting maintenance work, disconnect the heater from the power supply!**



- **Maintenance operations must be performed by adults with particular care and the use of protective gloves and glasses!**



- **Keep children away from the area while cleaning the heater!**



- Carry out maintenance work on the burner in accordance with the manufacturer's instructions in the burner manual,
 - It is recommended to remove dust and ash from the surface of the heater and its components, Grubość warstwy zanieczyszczeń na kanałach nie powinna przekraczać 2-3 mm,
 - The set includes brushes for cleaning the smoke tubes, which must be used during maintenance works
 - Restarting the heater after the maintenance is completed is possible only after closing the door, checking its tightness and placing the ash pan drawer in its place,

- After the end of the heating season, thoroughly clean the combustion chamber, the fan impeller with the fan and the exhaust gas ducts. It is also recommended to carry out a technical inspection of the heater and burner. If faults are noted, repairs should be made before the next heating season.

11.4 Cleaning smoke tubes

Convection channels and sheets inside the furnace must be kept clean. Soot, dust and ash resulting from combustion reduce the effectiveness and efficiency of the combustion process. Cleaning the smoke tubes should be preceded by further maintenance. For cleaning the smoke tubes, it is recommended to use a wire brush (see Fig. 24) with a diameter adjusted to the size of the smoke tubes (attached to the heater kit). Soot, ash, dust deposits and slags should be removed outside the heater through the open door directly into the open ash pan, which should be emptied after the completion of maintenance work.

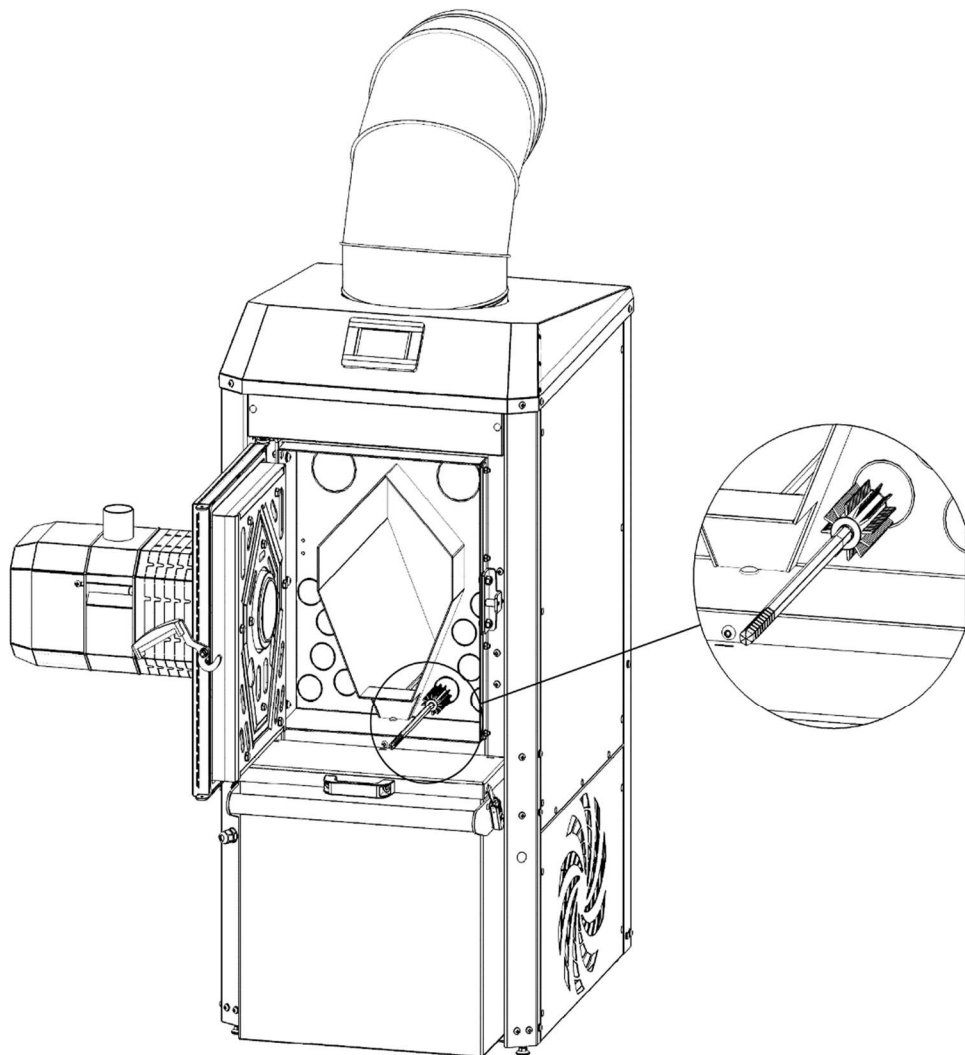


Fig. 24. Fire tubes cleaning instructor.

11.5 Cleaning the combustion chamber

In order to effectively exchange heat during cleaning of smoke tubes, check the cleanliness of the combustion chamber. When cleaning the combustion chamber, pay particular attention to the thorough removal of ash and slag from the chamber walls (see figure 25).

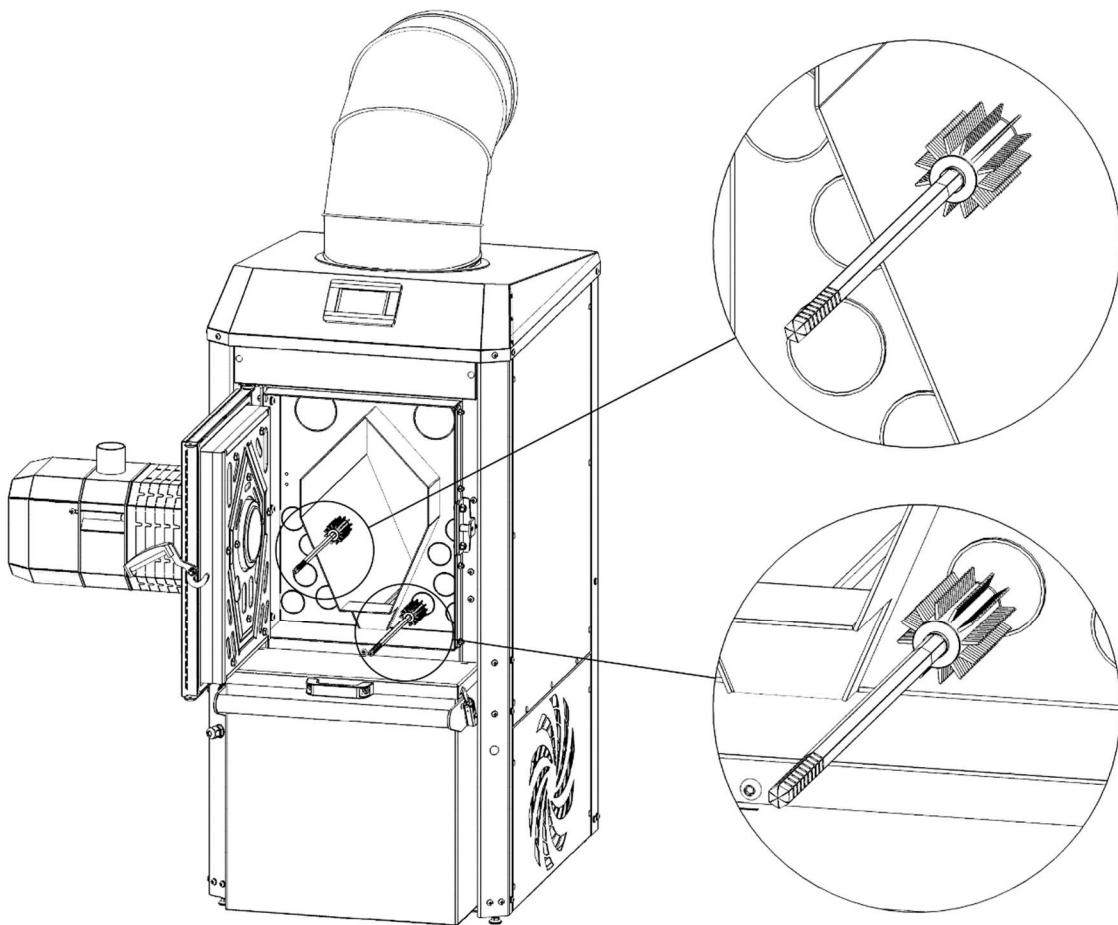


Fig. 25. Instructor for cleaning the combustion chamber.

11.6 Cleaning the hatch

Cleaning the cleanout involves unscrewing the wing nuts securing the cover flap to the rear wall of the heater. After unscrewing the nuts, it is possible to disassemble the flap and start cleaning the flue gas ducts (see Fig. 26), in which fly ash settles. The frequency of cleaning the

hatch depends on the quality and humidity of the fuel, the manufacturer recommends cleaning it every 7-14 days.

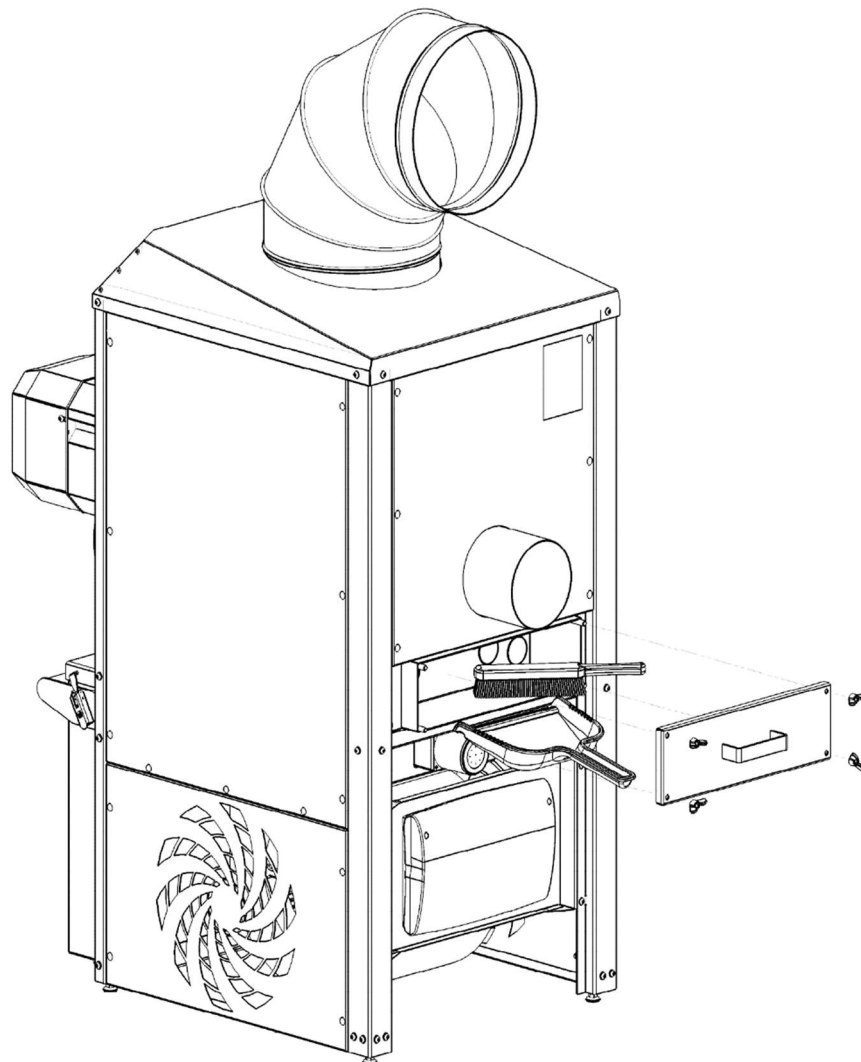


Fig. 26. Instructor for cleaning the washout.

11.7 Cleaning the ash pan

The KUPI air heater does not require the removal of ash from the burner or heater. Due to the automatic ash removal mechanism, the ash goes to the ash pan, from which it can be easily removed (see Fig. 27). The frequency of ash removal from the ash pan depends on the quality of the pellets and the length of operation of the device. It is recommended that so that the user regularly checks the amount of ash in the ash pan and, if necessary, remove it when the device is not working.

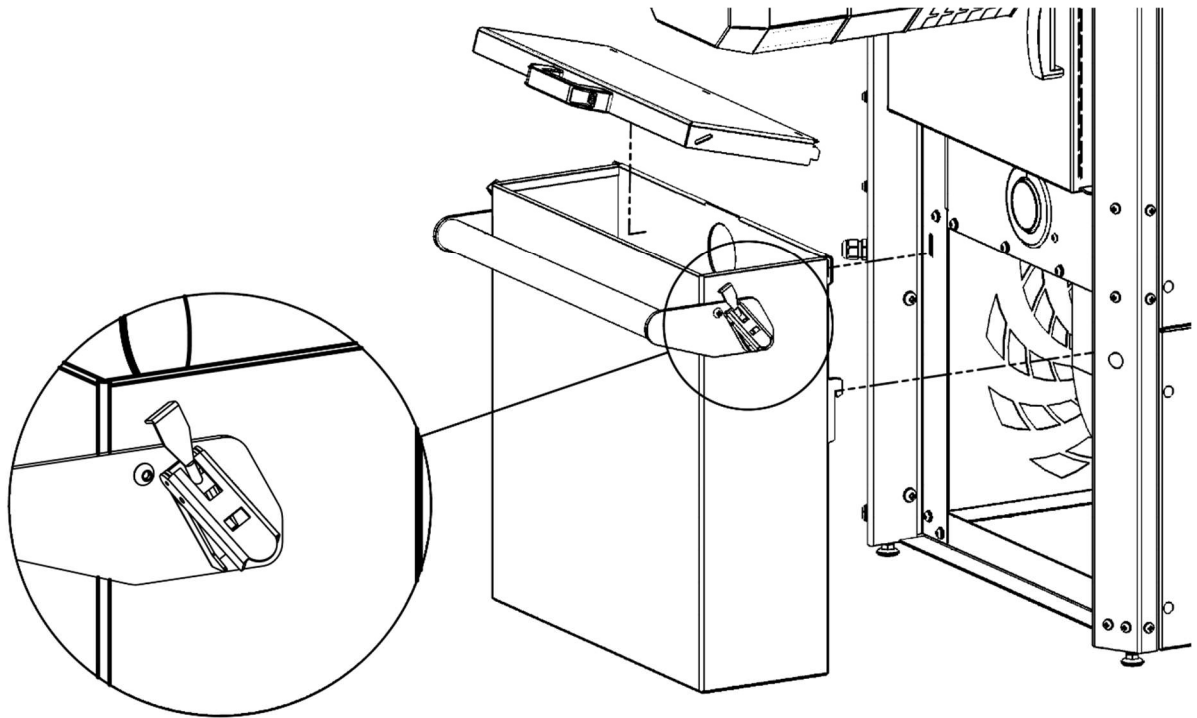


Fig. 27. Instruction for cleaning the ash pan.

Burner cleaning

According to regular cleaning of the heater elements, the user is obliged to clean the burner. Systematic burner maintenance involves cleaning the tubular blower chamber, lubricating the combustion chamber bearings and cleaning the optical sensor. Detailed information on cleaning the burner is included in the burner instruction manual attached to the device.

12. Technical data

12.1 Models of heaters, overall dimensions

The KIPi air heater, depending on the heating power, has different overall dimensions of both the heater body itself and the tank (see table 3, fig. 28, 29).

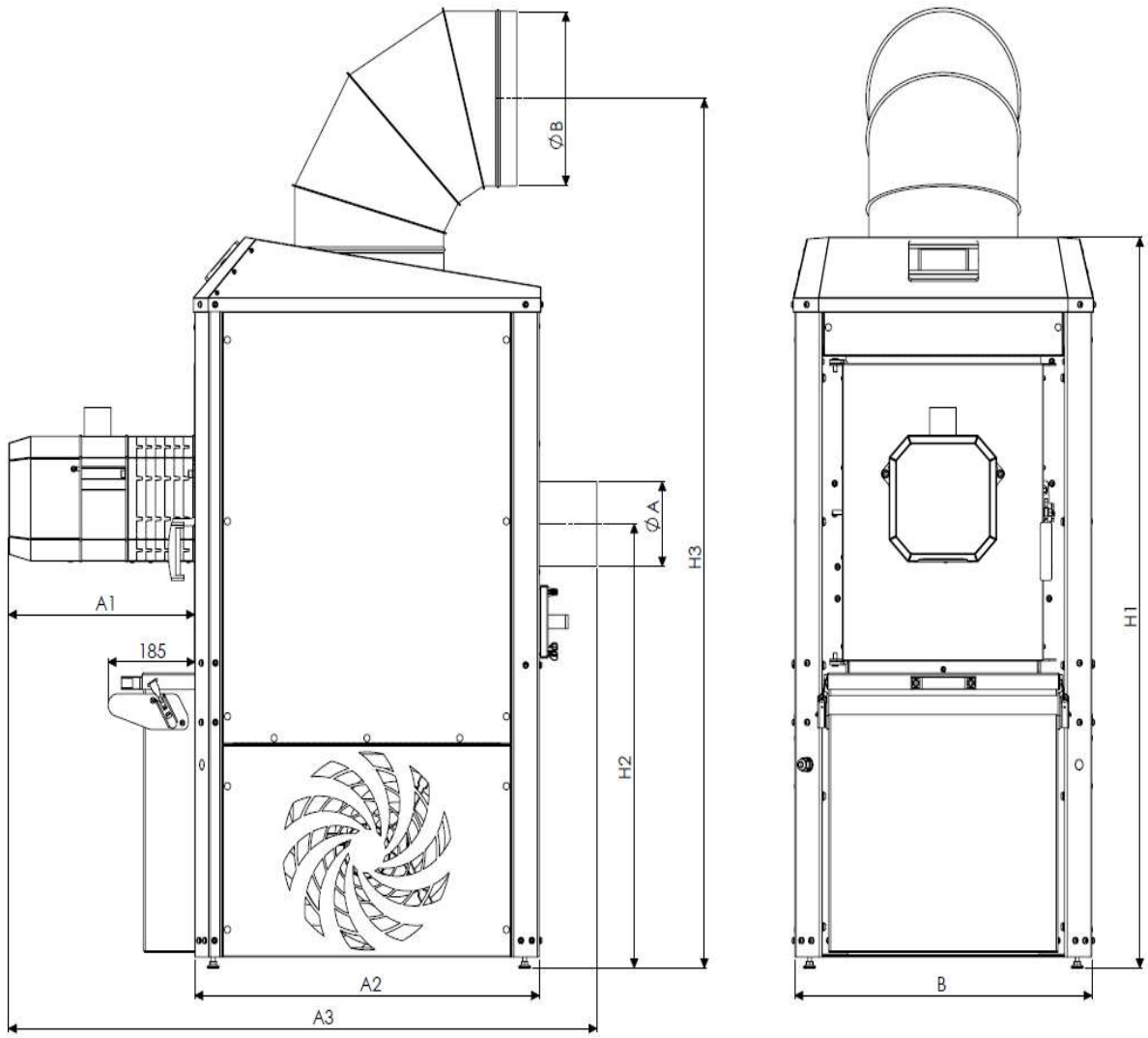


Fig. 28. Overall dimensions of the KIPi air heater.

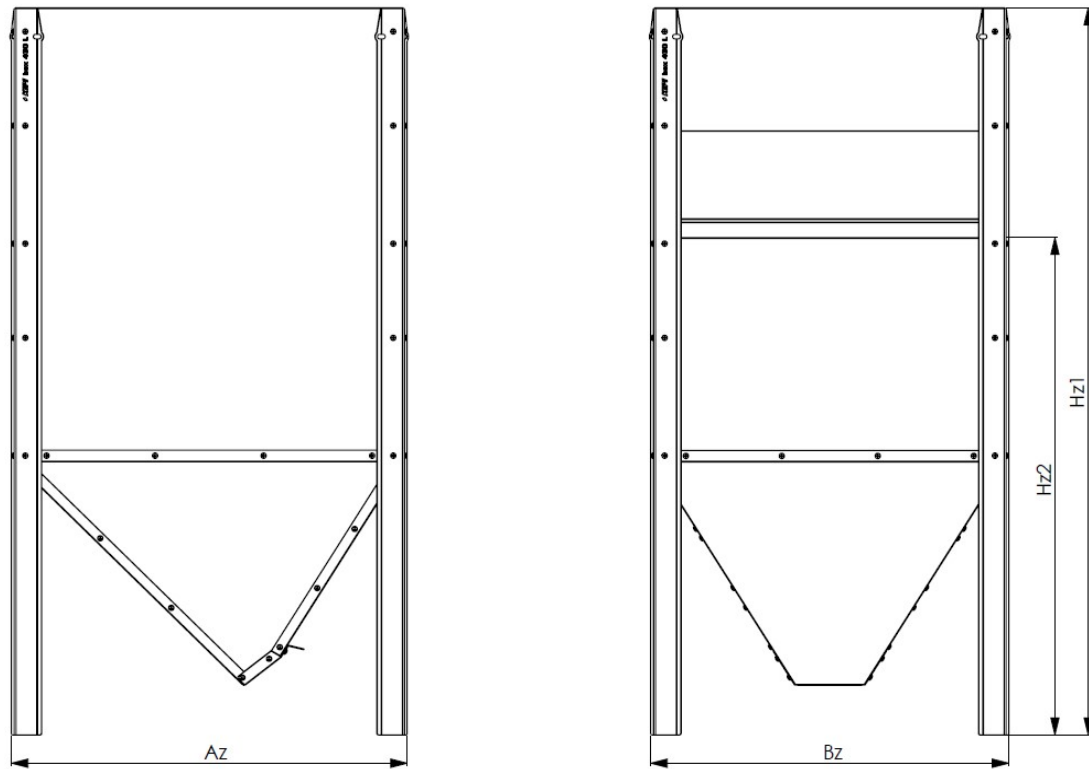


Fig. 29. Overall dimensions of the pellet hopper for the KIPi air heater.

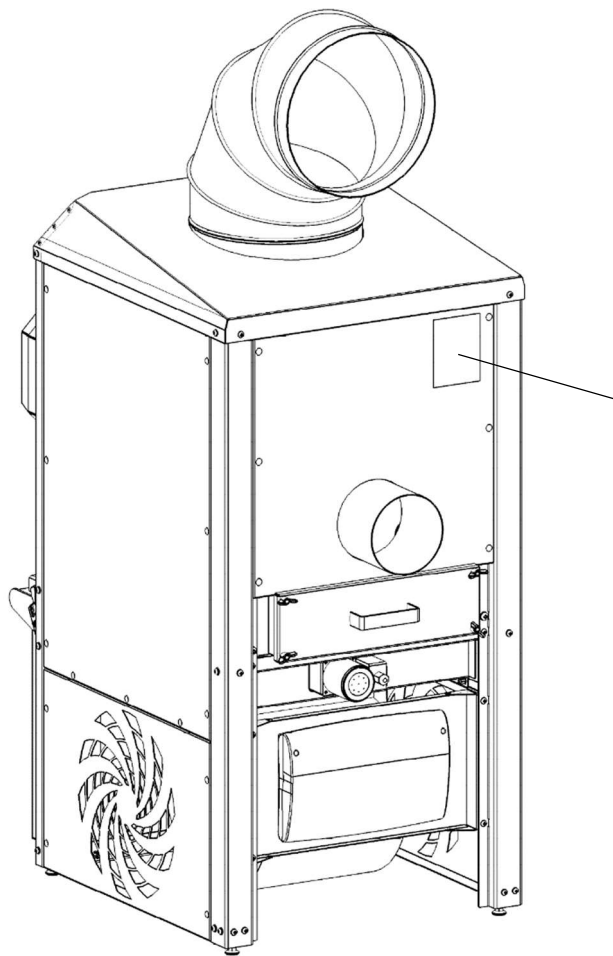
		24kW	30 kW	50 kW	70 kW	100 kW	150 kW	200 kW	250 kW	
Heater	A1	400	400	450		595				mm
	A2	735	735	935		1285				mm
	A3	1260	1260	1510		2005				mm
	B	635	635	705		785				mm
	H1	1330	1330	1430		1700				mm
	H2	810	810	910		1055				mm
	H3	1585	1585	1685		1955				mm
	ΦA	154	154	154		206				mm
	ΦB	315	315	315		315				mm
	weight		200							
Pellet tank	Az	715	715	915		1265				mm
	Bz	645	645	715		800				mm
	H _{z1}	1282	1282	1382		1652				mm
	H _{z2}	877	877	939		1142				mm
	V	410	410	660		1215				l.

Tab. 3. Summary of overall dimensions of heaters and storage tanks.

12.2 Device identification

The heater is fitted with a rating plate located on the rear of the appliance (see figure 30). The plate contains the following information:

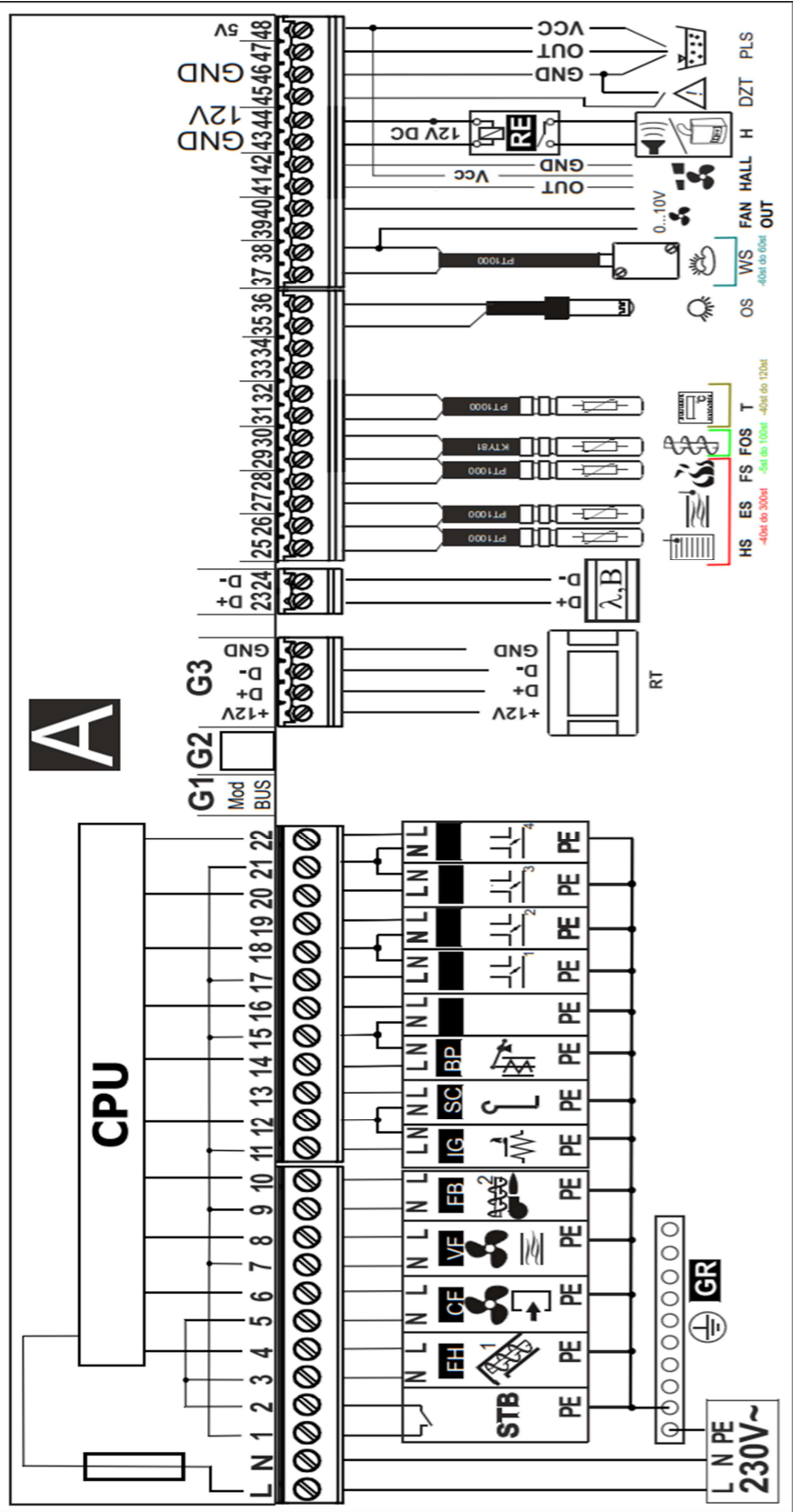
- manufacturer's name and address,
- registered trademark of the manufacturer,
- type and type of device,
- serial number and year of production,
- fuel class according to EN 14961-2,
- nominal thermal power,
- power range,
- device weight,
- electric supply and power consumption,
- CO emissions in the combustion products at rated heat output and at part load,
- device efficiency at nominal and partial power,
- minimum distance from combustible materials,
- the need to read the operating instructions before use.



KIPI	BTI GUMKOWSKI Sp. z o.o. Sp. k. ul. Obronicka 71 62-002 Suchy Las
	Nagrzewnica powietrza HF30
Nr fabr.: XXXX	Rok prod.: XXXX
	Moc nominalna: XX kW
Zasilanie: 230 VAC	Zakres mocy: XX kW
50Hz (6,3A) / 1350 W	Masa: XX kg
Emisje CO w produktach spalania dla XX%O₂: przy nominalnej mocy cieplnej XX mg/m ³ , przy obciążeniu częściowym XX mg/m ³ ,	
sprawność przy mocy nominalnej XXXX sprawność przy mocy częściowej XXXX	
Odstęp od materiałów palnych: nie dopuszcza się obecności materiałów palnych w pomieszczeniu, w którym znajduje się nagrzewnica powietrza	
Przed przystąpieniem do użytkowania urządzenia należy zapoznać się z instrukcją obsługi	
	CE

Ryc. 30. Location of the nameplate.

6.3. Electrical diagram of the ecoTOUCH 920P regulator



Rys. 31. Electric connection diagram for the ecoTOUCH 920P regulator.

Connection point designation	Function / Component
LNPE	230V ~ mains supply
CPU	control
FU	fuse
STB	input to the safety temperature limiter
FH	main tray
CF	burner blower fan
VF	air distribution fan
SC	rotary motor for cleaning the burner
IG	igniter
FB	internal fuel feeder
BP	Heater ash removal mechanism
RT	ecoSTER TOUCH room panel with a room thermostat function
λ	Lambda probe module
B	module for supporting additional heating circuits
HS	heater temperature sensor CT2-S
FOS	feeder temperature sensor CT4
ES	exchanger temperature sensor CT2-S
FS	flue gas temperature sensor CT2-S
T	built-in thermostat temperature sensor CT4
OS	optical flame brightness sensor
WS	weather temperature sensor CT6P
FAN OUT	0-10V external fan control output
HALL	input supporting hall sensor
H	voltage output to control the R reserve boiler or to signal AL alarms.
RELAY	12VDC relay
DZT	heater door opening sensor
PLS	fuel level sensor

Strap. 4. Marking of ecoTOUCH 920P regulator connections.

12.3 Technical parameters of heaters

technical specifications	KIPI AIR HEATER							
	24kW	30kW	50kW	70kW	100kW	150kW	200kW	250kW
Power input with fuel (kW)	7.8-26.3	9.7-33	16.3-55.4	22.77.6	32.7-110.5	49-165	n/a	n/a
Power range (kW)	7.2-24	9 - 30	15-50	21-70	30-100	45-150	n/a	n/a
Emission class according to EN 303-5: 2012	5	5	5	5	5	5	n/a	n/a
Efficiency for max power (%)	91	90.7	90.1	91.2	90.5	91	n/a	n/a
Efficiency for power min (%)	92.8	92.2	92	92.7	91.5	91.8	n/a	n/a
The flow of the heated air (m ³ / h)	2400	3750	3900	7100	7300	10500	n/a	n/a
Maximum air flow resistance through the heater (Pa)	115	115	90	160	152	170	n/a	n/a
CO emission at max power (mg / m3)	272	234	421	191	170	120	n/a	n/a
CO emission at min power (mg / m3)	310	175	230	344	230	280	n/a	n/a
Flue gas diameter (mm)	154			206			n/a	n/a
Flue gas temperature for power max. (° C)	170	185	190	187	192	185	n/a	n/a
Flue gas temperature for power min. (° C)	115	120	125	128	130	125	n/a	n/a
Electric supply (V)	230							
Required exhaust draft (Pa)	25-30			30-40				
Type of fuel	Class C1 pellets according to EN 14961-2							
Max. fuel consumption (kg / h)	5.4	6.7	11.3	15.9	22.6	33.7	n/a	n/a
Safety limit temperature (° C)	90							
Number of hot air distribution channels	1	1	1	2	2	2	n/a	n/a
Feeder length (m)	1.8	1.8	1.8	2.3	2.3	2.3	n/a	n/a

Tab. 5. Technical parameters of KIPI air heaters.

13. EC declaration of conformity

EC DECLARATION OF CONFORMITY



Manufacturer:

BTI GUMKOWSKI Sp. z o.o. Sp. k.

ul. Obornicka 71, 62-002 Dry Forest

declares that:

product Air heater AF, model: 24 kW, 30 kW, 50 kW, 70 kW, 100 kW, 150 kW, 200 kW, 250 kW complies with the requirements and directives:

- 2006/42 / WE,
- 2006/95 / WE,
- 2004/108 / EC,

and meets the requirements of the following harmonized standards:

- PN-EN 953 + A1: 2009,
- PN-EN ISO 13732-1: 2009,
- PN-EN 60127-1: 2008 / A1: 2012,
 - PN-EN 60445: 2011E,
 - PN-EN 60519-1: 2011E,
- PN-EN 60730-2-5: 2006 / A2: 2010E,
 - PN-EN 60730-1: 2012E,
 - PN-EN ISO 12100: 2012,
 - PN-EN 61000-6-3: 2008,
 - PN-EN 60730-2-9: 2011,
 - PN-EN 15270: 2008.

The person authorized to prepare the technical documentation is: Marcin Gamalczyk.

BTI GUMKOWSKI Sp. z o.o. Sp. k.
ul. Obornicka 71, 62-002 Suchy Las
KRS 0000520520 NIP 6721251263
REGON 302832793 tel. 61 811 70 37

Poznań, date. 10-05-2020

14. List of typical faults

The table below (see tab. 6) presents a list of typical faults of the KIPi air heater, their probable causes and the methods of dealing with them.

l.p.	fault	The cause of the fault	How to remove the fault
1.	Alarm: „Uszkodzenie czujnika temperatury nagrzewnicy”	heater temperature sensor failure	contact the manufacturer's service
2.	Alarm: "Damage to the feeder temperature sensor"	Damage to the housing temperature sensor	contact the manufacturer's service
3.	Maximum heater temperature exceeded	exceeding the critical operating temperature of the heater (92.5 °C) - activation of the STB sensor Setting too low temperature of the heater operation	- it is absolutely necessary to determine the cause of this error - delete the error by pressing the button on both controller increase the heater operation temperature in accordance with the heater manual
4.	The ash removal system is not working properly	damage to the ash removal system gear motor spiral burnout	contact the manufacturer's service contact the manufacturer's service
5.	Mechanical noise when the fan is running	consideration of a fan impeller	contact the manufacturer's service
6.	The burner does not ignite. Message: "Unsuccessful attempt to ignite"	No fuel in the container Blockade of fuel feeding augers	- refuel in the reservoir - carry out the procedure of filling the feeder - remove the error by press- ing the knob remove the locking element

	Defective igniter	contact the manufacturer's service
	Damage to the feed screw drives	contact the manufacturer's service
	Slag in the furnace	oczyścić komorę spalania
	Photodiode damaged or dirty	clean the photodiode, in case of damage, contact the manufacturer's service
	Slag or ashes in the combustion chamber of the CO heater at the level of the burner combustion chamber	clean the combustion chamber of the central heating heater
7.	Alarm:"Exceeding the maximum temperature of the transmitter"	Excessive temperature rise of the burner housing due to the flame retraction from the combustion chamber (default 90 OC) The controller will automatically switch to the furnace putting out mode. The alarm can only be cleared by the user.
	Insufficient run-in	Verify the value of the chimney draft and take any measures to increase it.
	Slag or ashes in the combustion chamber of the CO heater at the level of the burner combustion chamber	clean the combustion chamber of the central heating heater
8.	The fan does not turn off when the burner is extinguished	Photodiode damaged or dirty clean the photodiode, in case of damage, contact the manufacturer's service
9.	Smoke burner	Too little air supplied to the combustion chamber clean the furnace
	Covering the burner air inlet	clean the air inlet to the burner located at the bottom of the burner

	Fan failure	contact the manufacturer's service
10.	Too much slag in the furnace	Wrong type of fuel use the fuel recommended by the manufacturer
	Damage to the combustion chamber turning drive	contact the manufacturer's service

Tab. 6. List of typical faults of the KIPi air heater.

15. List of spare parts

The list (see tab. 7) and the location of the spare parts are shown below

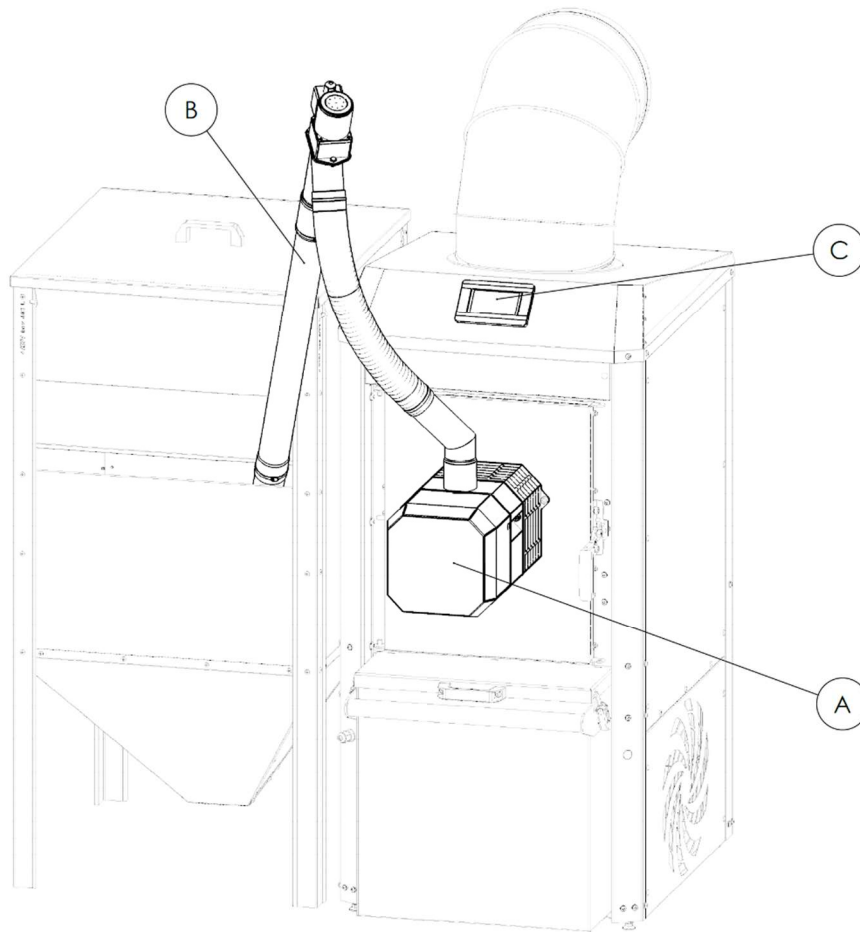
(see Figures 32, 33), which can be damaged by exploitation. The list includes parts relating to the heater itself, in the event of the need to replace parts of the burner, refer to the burner manual. New elements can be purchased from an authorized installer or directly from the heater manufacturer. When ordering spare parts, please provide information about the type of device, including the power of the device and year of manufacture, description of the parts and the quantity needed.

Removable elements	Nr	
STB sensor	1	
Temperature sensor	2	
Fan	3	
Heated air distribution duct	4	
Distribution channel seal	5	
Ash collector gear motor	6	
Ash collector (spiral)	7	
Capacitor	8	
Ashpan	9	
Ash pan buckle	10	
Torch	A	The list of spare parts is included in the attached burner and controller manuals
Feeder	B	
Controller	C	
Room thermostat		

Dampers

The elements are located outside the heater body

Tab. 7. List of spare parts for the KIPi air heater.



Ryc. 32. Dig. 32. Location of spare parts in the KIPi air heater.

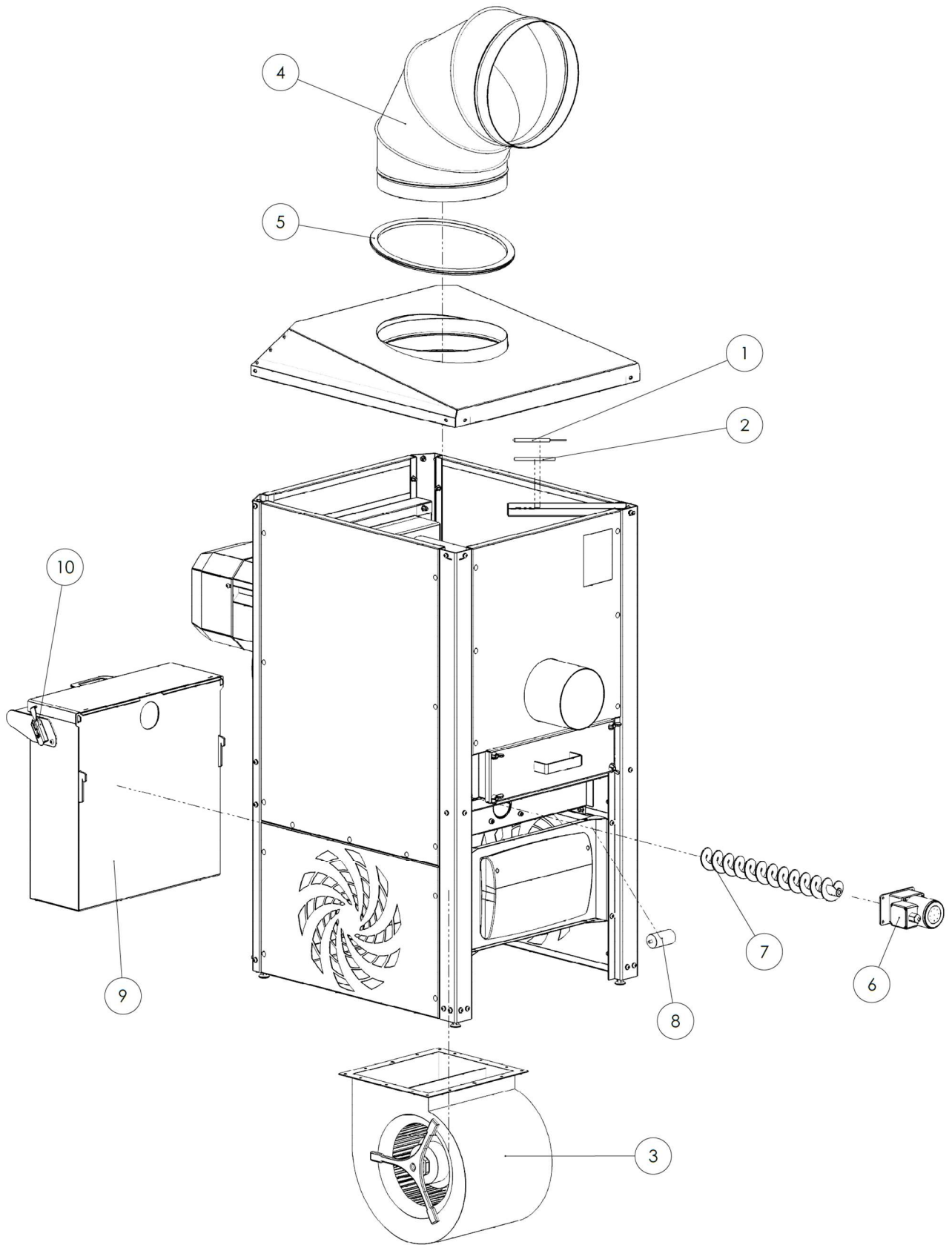


Fig. 33. Location of spare parts in the KIPi air heater.

16. Warranty terms

Thank you for choosing KIPi air heater. We make every effort to ensure that the device can be operated by you as long as possible. In connection with the above, please read the following information:

General conditions.

- The warranty is an obligation of the heater manufacturer to remove, free of charge, physical defects during its duration, resulting from workmanship defects.
- The burner and the controller have separate warranty cards and warranty terms contained in the attached manuals of these components.



- **Connection and start-up of the heater, as well as possible installation of the burner must be performed by an authorized and qualified service of the manufacturer.**



- The manufacturer is not responsible for incorrectly selected power on the heater.
- The documents entitling the heater user to a free warranty repair are: a completed Warranty Card
- and a document confirming the purchase of the device.
- The Warranty Card becomes invalid if the required signatures, seals and dates are missing.
- A copy of the Initial Commissioning Protocol completed by the installer must be sent to the manufacturer by mail or by e-mail.
- The consent to the processing of personal data GDPR, filled out by the user of the heater, must be returned by the installer
- to the Manufacturer via mail or e-mail.
- The condition for the validity of the warranty is the annual warranty inspections carried out by the authorized Installer, paid by the User, confirmed by an entry in the warranty card.
-

Warranty period.

- The manufacturer gives a guarantee for the efficient operation of the heater for a period of 24 months from the date of the first launch, but not later than 1 month from the date of purchase.
- The warranty is extended by the time of defect removal.

First Running

- The heater must be started up for the first time by an authorized and qualified service center of the manufacturer on the user's request.
- The scope of commissioning includes:
 - checking the correct installation and operation of the device,
 - adjustment of the burner and heater,
 - checking the correct operation of the device's safety devices,
 - fulfillment of the Guarantee.

The scope of the first launch does not include:

- removal of defects and faults in the installation.

Reviews.

- Inspections should be performed annually from the date of First Commissioning..

The warranty does not cover

- replacement of consumable parts subject to wear,
- regulation of device operating parameters,
- cleaning and maintenance of the device,
- damage resulting from improper storage, transport or moving the device,
- damage resulting from faulty assembly and commissioning,

- damage resulting from improper use of the device and the use of inappropriate fuels,
- faults resulting from improperly executed heating, chimney and ventilation installations,
- damage caused by random factors beyond the Manufacturer's control (e.g. flood, fire, electrical surges, etc.).)

The warranty is forfeited as a result of:

- too small chimney cross-section and chimney draft,
- damage resulting from faulty electrical installation,
- lack of careful periodic cleaning,
- incorrect settings of the heater operation parameters,
- finding combustion of inadequate quality of fuel (fuel causing formation of slag and tar deposits difficult to remove on the burner),
- tearing off the rating plates identifying the device,
- repairs made by unauthorized persons,
- changes of device elements - making modifications on their own,
- loss or damage of the warranty card,
- the warranty on foreign markets is valid only when purchased from an Authorized Distributor operating in a given country, otherwise the warranty is void..

Warranty repair:

- The warranty claim should be submitted to the seller or the manufacturer
- Any information about defects must be provided immediately after their detection, in writing to the Manufacturer

- Defects revealed within the first 24 months from the date of the first start-up will be removed by the Manufacturer within 21 working days from the date of the written complaint being submitted to the Manufacturer. The notification must be submitted to the manufacturer by mail or by e-mail
- The method, scope and conditions of the warranty repair are specified by the manufacturer (repair, replacement of specific parts, replacement of the entire product).
- Performing a warranty repair should be confirmed with a protocol.
- The claimant of damage under the warranty is obliged to reimburse the costs of the call in the event of:
 - damage to the heater and repair of the damage caused by the user's fault,
 - call for service for activities not covered by the warranty
 - no possibility of repair for reasons beyond the control of the service, such as:
 - no electric power supply in the installation, no fuel, incorrect or damaged chimney,
 - difficulties in starting and operating the heater due to improper fuel quality
 - or the method of smoking inconsistent with these instructions.

17. Attachments:



17.1 Warranty - first run - a copy to be sent along with the GDPR consent clause

USER / DEVICE INSTALLATION LOCATION					
first name and last name:			1. I declare that I have read the warranty conditions and accept them without reservations. I have received the User's Manual and have been trained for the operation of the device.		
street:					
city / postal code:					
phone / e-mail:					
		 (date and legible signature of the User)		
DEVICE INFORMATION					
device		<i>KIPI AIR HEATER</i>		Burner type:	
Thermal power [kW]:			power[kW]:		
serial number and year of production::			nr fabryczny i rok produkcji:		
DETAILS OF THE COMPANY INSTALLING THE DEVICE					
(Company name, Name and surname of the person carrying out the installation, telephone number / stamp)			2. I certify that the devices have been installed in accordance with		
			with applicable standards and legal regulations. The device has been checked and is flawless. The device is working properly.		
DATA OF THE COMPANY CONDUCTING THE FIRST START-UP					
(Company name, Name and surname of the person carrying out the first commissioning, telephone number / stamp)		 (date, stamp and signature of the Installer)		
		 (date, stamp and signature of the person carrying out the first commissioning)		
SETTING PARAMETERS					
TRAY TEST		CLEANING		LIGHTING	
feeder capacity [kg / h]	feeder capacity [kg / h]	rotary cleaning [s]	fuel dose [g]	firing up [%]	warm-up time [s]
HEATER POWER MODULATION					
min. heater power [kW]	min. airflow [%]	min. airflow [%]	mid airflow [%]	max. heater power [kW]	max. airflow [%]
ANALIZA SPALIN (PRZY MOCY MAX.)					
CO [ppm]	O2 [%]	chimney draft [Pa]		exhaust gas temperature [°C]	
SUPERVISION					

YES <input type="checkbox"/>		NO <input type="checkbox"/>	
supervision time [ppm]	heater power in supervision [kW]	cycle time [s]	blowing power [%]
ADJUSTMENT MODE		STANDARD <input type="checkbox"/>	FUZZY LOGIC <input type="checkbox"/>
BURNER IN THERMOSTAT MODE		YES <input type="checkbox"/>	NO <input type="checkbox"/>
BOILER ROOM VENTILATION	GOOD <input type="checkbox"/>	MEDIUM <input type="checkbox"/>	BAD <input type="checkbox"/>

Consent clause for the processing of personal data in accordance with the GDPR

1. I, the undersigned / signed

I consent to the processing of my personal data, including: name and surname, address, telephone number, e-mail address by the data administrator BTI GUMKOWSKI Sp.zo.o. Sp.k with headquarters in Suchy Las, ul. Obornicka 71, KRS 0000520520, for the purpose of: marketing and information.

2. I provide my personal data voluntarily and declare that they are true.

3. I have read the content of the information clause, including information about the purpose and methods of processing personal data and the right to access my data and the right to correct it.

.....

date / signature of the data subject

Information clause in the case of collecting data from the data subject

1) Please be advised that:

the administrator of your personal data is the company BTI Gumkowski Sp.zo.o.Sp.k. hereinafter referred to as the Administrator; The administrator conducts the processing of your personal data,

2) your personal data will be processed for information and marketing purposes and will not be shared with other recipients, the basis for the processing of your personal data is art. 6 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46 / EC (general Data Protection Regulation),3) providing data is necessary to fulfill the legal obligations incumbent on the administrator, in the case of failure to provide data, it is impossible to effectively perform them,

4) you have the right to:

- requests from the Administrator to access their personal data, rectify them, delete or limit the processing of personal data,

- object to such processing,
- data portability,
- lodging a complaint to the supervisory body,
- withdrawal of consent to the processing of personal data.

5) your personal data is not subject to automated decision making, including profiling,

I declare that I have read the above content, understand and accept its terms.

17.2 Warranty - first start of the heater

USER / DEVICE INSTALLATION LOCATION					
first name and last name:			<p>1. I declare that I have read the warranty conditions and accept them without reservations. I have received the User's Manual and have been trained for the operation of the device.</p> <p>..... (date and legible signature of the User)</p>		
street:					
city / postal code:					
phone / e-mail:					
DEVICE INFORMATION					
device:		<i>KIPI AIR HEATER</i>		Burner type:	
Thermal power [kW]:			power [kW]:		
serial number and year of production:			serial number and year of production:		
serial number and year of production			<p>2. I certify that the devices have been installed in accordance with</p> <p>with applicable standards and legal regulations. The device has been checked and is flawless. The device is working properly.</p>		
<small>(Company name, Name and surname of the person carrying out the installation, telephone number / stamp)</small>					
DATA OF THE COMPANY CONDUCTING THE FIRST START-UP					
<small>(Company name, Name and surname of the person carrying out the installation, telephone number / stamp)</small>			<p>..... (date and legible signature of the User)</p> <p>..... <small>(Company name, Name and surname of the person carrying out the installation, telephone number / stamp)</small></p>		
SETTING PARAMETERS					
Feeder Test		Cleaning		Burning	
feeder capacity [kg / h]	feeder capacity [kg / h]	rotary cleaning [s]	fuel dose [g]	firing up [%]	warm-up time [s]
HEATER POWER MODULATION					
min. heater power [kW]	min. airflow [%]	min. airflow [%]	mid airflow [%]	max. heater power [kW]	max. airflow [%]
Fume Analysis (around MAX.)					
CO [ppm]	O2 [%]	chimney draft [Pa]	exhaust gas temperature [°C]		

SUPERVISION					
YES	<input type="checkbox"/>	NO	<input type="checkbox"/>		
supervision time [ppm]	heater power in supervision [kW]	cycle time [s]	blowing power [%]		
ADJUSTMENT MODE		STANDARD	<input type="checkbox"/>	FUZZY LOGIC	<input type="checkbox"/>
BURNER IN THERMOSTAT MODE		YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
BOILER ROOM VENTILATION	GOOD	<input type="checkbox"/>	MEDIUM	<input type="checkbox"/>	BAD
					<input type="checkbox"/>

17.3 Warranty - annual inspection

List of activities:

Automation control

Control of safety devices

Checking the fastening mechanism and the condition of the firebox

Lambda probe calibration

SETTING PARAMETERS					
TRAY TEST		CLEANING		FIRING UP	
feeder capacity [kg / h]	cleaning intensity [%]	rotary cleaning [s]	fuel dose [g]	firing up [%]	warm-up time [s]
HEATER POWER MODULATION					
min. heater power [kW]	min. airflow [%]	mid heater power [kW]	mid airflow [%]	max. heater power [kW]	max. airflow [%]
EXHAUST GAS ANALYSIS (AT MAX POWER)					
CO [ppm]	O2 [%]	chimney draft [Pa]		exhaust gas temperature [°C]	
SUPERVISION					
YES	<input type="checkbox"/>	NO	<input type="checkbox"/>		
supervision time [ppm]	heater power in supervision [kW]	cycle time [s]	blowing power [%]		
ADJUSTMENT MODE		STANDARD	<input type="checkbox"/>	FUZZY LOGIC	<input type="checkbox"/>
BURNER IN THERMOSTAT MODE		YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
BOILER ROOM VENTILATION	Good	<input type="checkbox"/>	Midium	<input type="checkbox"/>	BAD
					<input type="checkbox"/>

17.4 Warranty - two-year inspection

List of activities:

Automation control

Control of safety devices

Checking the fastening mechanism and the condition of the firebox

Lambda probe calibration

SETTING PARAMETERS					
TRAY TEST		CLEANING		FIRING UP	
feeder capacity [kg / h]	cleaning intensity [%]	rotary cleaning [s]	fuel dose [g]	firing up [%]	warm-up time [s]
HEATER POWER MODULATION					
min. heater power [kW]	min. airflow [%]	mid heater power [kW]	mid airflow [%]	max. heater power [kW]	max. airflow [%]
EXHAUST GAS ANALYSIS (AT MAX POWER)					
CO [ppm]	O2 [%]	chimney draft [Pa]	exhaust gas temperature [°C]		
SUPERVISION					
YES <input type="checkbox"/>		NO <input type="checkbox"/>			
supervision time [ppm]	heater power in supervision [kW]	cycle time [s]	blowing power [%]		
ADJUSTMENT MODE		STANDARD <input type="checkbox"/>	FUZZY LOGIC <input type="checkbox"/>		
BURNER IN THERMOSTAT MODE		YES <input type="checkbox"/>	NO <input type="checkbox"/>		
BOILER ROOM VENTILATION	Good <input type="checkbox"/>	Midium <input type="checkbox"/>	BAD <input type="checkbox"/>		

17.5 Repairs

<p>defect notification date:</p> <p>date of removing the defect:</p> <p>description of the problem:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>a list of the listed elements:.....</p> <p>.....</p> <p>signature, Installer's stamp and license number:.....</p>
<p>defect notification date:</p> <p>date of removing the defect:</p> <p>description of the problem:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>a list of the listed elements:.....</p>

.....

signature, Installer's stamp and license number.:.....

date of reporting the defect:.....

date of fault removal:.....

description of the problem:.....

.....

.....

.....

.....

a list of the listed elements:.....

.....

signature, Installer's stamp and license number.:.....