HIGHER

58-130 Żarów, ul. Armii Krajowej 74

FORCED AIR FURNACE PN 1/2/3/4/5

USER AND MAINTENANCE MANUAL

THANK YOU FOR PURCHASING A PRODUCT FROM HIGHER

NOTICE: BEFORE STARTING THE INSTALLATION AND OPERATION OF THE FURNACE, THE USER SHOULD FAMILIARISE THEMSELVES THOROUGHLY WITH THIS OPERATING MANUAL.

It contains 26 numbered pages

Table of contents:

1. General information

PN type furnaces (pl. Piec Nadmuchowy - eng. Forced-Air Furnace (versions 1, 2, 3) are a new version of heaters, with an adjustable process of blowing warm air, fuelled by solid fuel. 4 5

A warranty is provided for the furnace. Detailed warranty conditions are specified in this manual and the attached warranty sheet. Warranty sheets are also provided for the fan and regulator (sales sets). When transporting the furnace, it should be secured against shifting and tilting on the vehicle platform using straps, wedges and wooden blocks attached to the vehicle platform. The furnace should be transported in an upright position. Lifting and lowering of the furnace should be done using mechanical lifts (forklifts), by inserting the forks under the furnace body, between the legs. Thorough familiarisation with the furnace's user manual, which includes information on construction, installation and operation, is essential for ensuring correct and safe use. Furnaces are delivered on a pallet in an upright position, with the following parts requiring the installation: handles, knob, fan, controller.

2. Purpose of PN furnaces

PN air-forced furnaces are intended for periodic heating of industrial premises, workshops, warehouse halls, production halls. Everywhere where warm air can be distributed by a system of steel or aluminium - flexible pipes. They are very efficient sources of heat, through the heating and blowing system, the temperature of the rooms can be changed to a higher one in a short time, up to the appropriate temperature. Heated air can reach a temperature of up to 150 degrees Celsius (deg. C)

2.1. Selection of heating device power

The selection of the heating device power depends on the degree of insulation of the room and the heated volume. It is assumed that for a sufficiently insulated room 1kW of power is enough to heat 10 m2, with a standard height of 2.5m. Under penalty of loss of warranty, the power of the device should be properly selected for the size of the heated rooms.

3. Fuel for the forced-air furnace

PN-type forced-air furnaces are designed to use firewood /lignite as fuel. They are made in accordance with the requirements of the PN-EN- 13240:2008 standard "Room heaters for solid fuel. Requirements and tests". Do not completely fill the hearth with fuel - optimal filling is about 1/3 of the height of the firebox. Fuel should be stored in a designated place, but not closer than 1000mm/1m from the furnace. The calorific value of wood is on average 3.5-3.7 kW/kg with wood moisture below 20%. Wood with a moisture content not exceeding 20% is suitable for burning. Such moisture content is achieved after about a 2-year storage period. Freshly harvested wood is characterised by a moisture content of 50-60%. Burning such wood causes, in addition to twice the fuel consumption, corrosion of furnace elements, soot deposition in the combustion chamber and chimney flue.

Not recommended fuels- In PN type furnaces it is not recommended to use fuels: hard coal, sawdust briquettes - possibility of releasing large amounts of soot and occurrence of high flue gas temperatures. Prohibited fuels: coal dust, coke, sawdust, waste, chemical waste. Burning this type of fuel is prohibited.

4. Construction of PN furnaces

The furnaces are made of steel sheet. The body of the furnace is in the shape of a cross-section rectangle, lined inside with fireclay bricks 32mm thick. The bricks are made of fireclay with a temperature resistance up to 1500 degrees. C. The bricks protect the sheet from excessive heating and burning through, and are also an excellent source of heat retention. Upon heating to a dark red colour, they give off heat through the body plate to the air jacket. In the air jacket, additional elements were installed, which cause air circulation around the furnace body. This maximises the use of the heating surface of the furnace body and also significantly reduces heat loss. Elements leading out the heated air, in the shape of a cylinder, depending on the furnace, there are from 2 to 5pcs/furnace, were also welded to the jacket. For blowing, blowers (commercial item) with an air capacity from 500 to 4500 m3/h were used. The size of the installed blower depends on the size of the hearth of a given furnace. In the lower part of the furnace combustion chamber, there is a cast iron grate for burning fuel on it. The furnace is equipped with 1 to 4 rectangular grates measuring 310x210cm. The furnace grate is made of grey cast iron, resistant to temperatures up to 1650 degrees C. Additionally, a vertical grate has been used - it separates the combustion chamber from the furnace doors, preventing hot coal embers from falling out. Inside the combustion chamber, at the top before the exhaust gases exit to the chimney, a DEFLECTOR (a rectangular shaped exhaust gas cover) is installed. Its main task is to temporarily "hold back" exhaust gases/heat in the chamber,

in order to heat the entire combustion chamber, maximising the use of thermal energy before releasing gases/exhaust/fires to the chimney. During daily furnace operation, check the condition of the deflector to ensure safe operation of the heater. A blocked deflector can cause smoking, improper flue gas discharge to the chimney. We recommend checking the condition/cleanliness of the deflector before each start-up of the furnace. The furnace has 3 x doors (PN 3, 4, 5 from the top) - for loading, for hearth (middle), for ash pan (bottom). The ash pan door is equipped with an adjustable primary air throttle. The doors are additionally protected by the addition of a 5.0mm thick protective sheet. The air throttle ensures optimal and user-adjustable air supply to the combustion chamber. During ignition - the throttle should be set in the maximum position, in order to ensure a sufficient amount of oxygen during ignition. During combustion, the throttle regulates the amount of air in the combustion chamber, thus also regulating the thermal power of the furnace. To extinguish the combustion chamber, the throttle must be fully closed, cutting off the oxygen supply to the combustion chamber, resulting in a slow extinguishing process.

The furnace has 2 x doors (PN1, PN2 from the top) - for loading, and for hearth with ash pan (bottom). Ash pan door equipped with adjustable primary air throttle. The air throttle ensures optimal and user-adjustable air supply to the combustion chamber. During ignition - the throttle should be set in the maximum position, in order to ensure a sufficient amount of oxygen during ignition. During combustion, the throttle regulates the amount of air in the combustion chamber, thus also regulating the thermal power of the furnace. In order to extinguish the hearth, the throttles should be completely closed. By cutting off the oxygen supply to the combustion chamber, the hearth is extinguished. Additionally, a vertical grate separates the combustion chamber from the furnace doors, preventing hot coal embers from falling out.

At the top of the furnace, a flue gas outlet damper with adjustable draught - a flap with an additional spring, allowing smooth regulation of chimney draught, has been installed. The diameter of the pipe used for flue gas discharge is 120/130/150mm (depending on the furnace model). In the same, the upper, part of the furnace there are

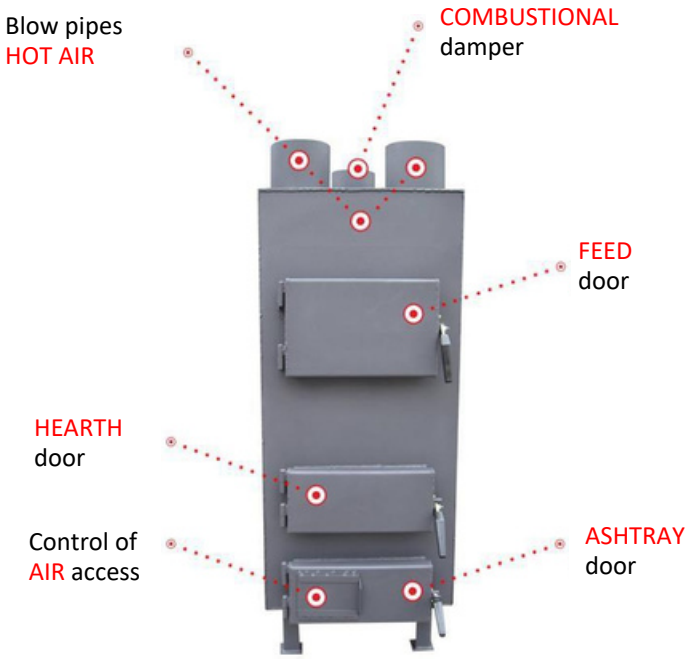
cylindrical pipes leading out hot air to the outside.

The external surface of the furnaces is painted with heat-

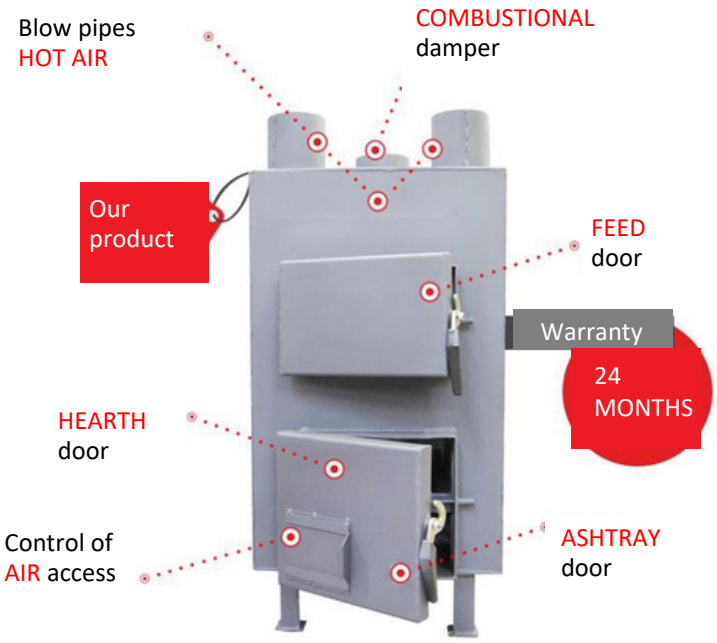
resistant silicone paint resistant to temperatures up to 650 deg. C.

5.Schematic diagrams of PN furnaces

Schematic diagram of the PN 3, PN 4, PN 5 furnace



Schematic diagram of the PN 1, PN 2 furnace



6.Furnace installation

The room in which the furnace is to be installed should comply with the following regulations:

- Regulation of the Minister of Infrastructure of 12 April 2002 "On technical conditions to be met by buildings and their location" Journal of Laws No. 75 item 690.

The furnace should be set up and connected by a person with appropriate qualifications. The connected furnace should be placed on a surface with sufficient load-bearing capacity in relation to the weight of the furnace, resistant to high temperature and pressure, e.g. on a concrete floor, ceramic tiles. If the building elements forming the surroundings of the furnace and the floor are made of flammable materials, the following distances to the device should be maintained:

- the heating device and connection pipes should be at least 1.2m away from flammable, unprotected parts of the building structure (we recommend at least 2.0m), and from those covered with a 25mm thick plaster cladding on a mesh, or another equivalent cladding - at least 0.3m (we recommend at least 0.5m).

- if the degree of flammability of the elements is unknown, a safe distance of at least 1.5m should be maintained from the elements.

- the heating device with legs should be placed on a non-flammable and high-temperature resistant surface with a thickness of at least 50mm. In the case of a floor made of flammable materials, it should be lined with steel sheet of at least 1.0mm thickness, at a distance of at least 0.5m from each edge of the furnace. In addition, the location of the furnace should ensure easy access for operation and maintenance.

In addition, the furnace can be installed in a room with specified ventilation parameters. See point 8 of the User Manual.

7.Connecting the furnace to the flue duct

The connection to the chimney should be made tightly, directly through a pipe connection with a diameter of 120/130/150mm (depending on the furnace model). The pipe connection should be made of high temperature resistant steel. When a longer section is made up of a package of pipes to the chimney, pay special attention to the tightness of the connections. Keep in mind not to insert the pipe too deeply into the chimney, because then there is a risk of worsening the draught by decreasing the patency of the chimney. The length of horizontal flue pipes should not be greater than ¼ of the effective chimney height and no more than 7m. Such a connection should have a slope towards the furnace.

The chimney should have internal dimensions of at least 14x14cm, or an internal diameter of 15cm. The cross-section of the chimney duct should be the same throughout its height. The height of the chimney should ensure a draft of at least 12 Pa (0.12bar). The chimney and chimney ducts should be checked for tightness, any leaks are unacceptable. A draft force above 12 Pa can lead to overheating of the combustion chamber and loss of warranty rights.

NOTICE: The suitability of the chimney and exhaust installation should be assessed by a chimney sweep, confirmed by a handover protocol. The furnace should have a separate flue duct. It is unacceptable to connect several appliances to a single flue.

8.Air for combustion, ventilation and forced-air

The room in which the furnace is installed should have adequate ventilation, ensuring free air supply for combustion and blowing. Due to the furnace's fairly high demand for forced air, it is not permitted to use the furnace in rooms without ventilation from the outside. The minimum ventilation grille connecting the room with the external environment is 200x200 or 250mm in diameter, with an air inflow of 10m3/h per 1kW of the furnace's nominal power. The volume of the rooms should result from the index of 4 m3/kW of the furnace's nominal heat output. In the case where other devices with a hearth are operating in the rooms connected by ventilation, it is absolutely necessary to ensure a sufficient amount of air for combustion and ventilation, taking into account all devices. In case of doubt, a chimney sweep performs the technical assessment. Insufficient air supply causes incomplete combustion of fuel, and exhaust gases containing carbon monoxide and soot can cause smoking. This phenomenon is dangerous to life and health, reduces the power of the device and does not constitute a basis for warranty claims.

NOTICE: In the room where the furnace is installed or in rooms connected by ventilation, it is forbidden to use mechanical exhaust ventilation, e.g. an exhaust fan. If such a fan is used, a second forced air fan should be used, exceeding the performance and parameters of the exhaust fan twice. More air should be supplied to the room than is extracted.

8.1 Air blower

The principle of operation of a forced air furnace is the heating of air flowing around the heated body of the furnace, this takes place in the jacket surrounding the furnace. The air jacket has an additional compartment, which causes a constant circulation of air throughout the volume of the jacket. The air movement is assisted by a 230V electric blower. The fan draws air from the surroundings, pushes it into the jacket, where the air is heated and pushed out through cylindrical elements.

In the PN furnace - a pushing fan with a protective grid made of metal is used. Thanks to the profiling of the impeller blades in the shape of a sickle, the fans have high air flow efficiency while emitting minimal noise. The blades are made of pressed sheet metal.

In the PN 1 furnace, a fan with a diameter of 250mm is used, in the PN 2 furnace a fan with a diameter of 300mm is used, in the PN 3 furnace a fan with a diameter of 350mm is used, in the PN 4 furnace a fan with a diameter of 400mm is used, in the PN5 furnace a fan with a diameter of 450mm is used.

The fan motor must be switched on when the furnace is hot and heated, the air drawn in through the blades cool the motor and electrical installation to prevent overheating and damage. Fans are electrical devices, connection to the 1x230V electrical network only by authorised persons. The furnaces are optionally equipped with an electronic controller, which manages the operation, the moment of switching on and switching off the blower. This makes it easier to operate the furnace, the user does not have to remember to switch the blower on/off.

NOTICE: For full fan performance - the rotations must be to the LEFT SIDE - standing behind the furnace and in front of the blower - the motor with the blades rotates to the LEFT side, right rotations indicate improper electrical connection, and thus, improper operation of the heater.

Fig.1 PN furnace's fan blower - overview

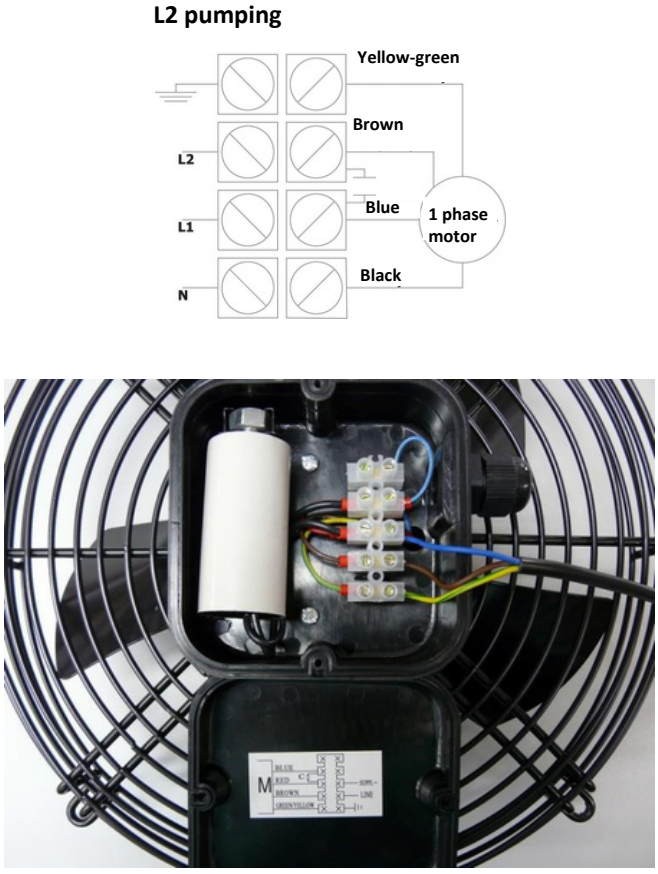


Fig.2 Schematic diagram of fan connection to 230V network

NOTICE: It is forbidden to use the furnace without a functional and switched-on blower. The blower must be switched on for the entire period of the furnace operation - i.e., it should be switched on when we start the fire in the furnace, we switch off the blower at the moment of complete extinguishing of the furnace. The blower must be connected to a functional electrical network. It is forbidden to use it with a malfunctioning electrical installation.

8.2. Controller for controlling the blower (option to be equipped).

SN21 Controller

SC Controller

Fig. 3 Microprocessor fan controller (commercial product)

Microprocessor regulator "SN21"/ "SCL" (commercial item, varies depending on supplier and furnace model), intended to regulation of the temperature of switching on/off the blower/fan after reaching the set temperature.

The controller's task is to switch on the blower if the forced air temperature exceeds the desired set value and to switch it off if the fire in the furnace goes out or the forced air temperature falls below the set value on the regulator. The controller is equipped with an automatic/manual operation function. The SN21 controller has an additional function of fan speed regulation, LED set temperature display, minimum fan speed compensation function.

The temperature sensor (thermocouple) should be placed in the appropriate place in the furnace - 3/8" pipe in the rear wall of the furnace. Pump cable (blower, fan)- used for electrical connection to the electrical box of the blower/fan. The controller should be connected to the fan and then to the 230V electrical network only by authorised persons. Choose the set temperature for the fan to switch on, choose work mode - manual/automatic. After switching on with the 0-1 button, the controller will switch on the fan itself (automatic operation), after reaching a certain working temperature - set on the scale with the setting knob. The fan will work as long as the temperature inside the jacket is higher than the set one, after the furnace has cooled down, drop in jacket temperature, the blower fan will be switched off. The furnace and blower will go into extinguishing/rest mode.

The controller attached to the blower makes the furnace less serviceable. The user no longer has to remember to switch on/off the forced air fan. There is also no risk of thermal damage to the device, due to not switching on the blower at a specified time.

NOTICE:

It is forbidden touse the furnace withouta functionaland switched-on controller. Thecontroller must be switched on for the entire period of the furnace operation - i.e., it should be switched on when we start the fire in the furnace, we switch it off at the moment of complete extinguishing of the furnace. The controller must be connected to a functional electrical network. It is forbidden to use it with a malfunctioning electrical installation.

9. PN furnace operating INSTRUCTIONS

The furnace can only be operated by adults, familiar with this instruction manual, the furnace can be operated by people in glasses and protective gloves using appropriate tools. It is forbidden for children to be in the area of the working furnace without the supervision of adults and to allow them to operate the furnace.

In the vicinity of the furnace, at a distance of at least 2.0m, do not store flammable materials such as: furniture, clothes, flammable liquids etc.

The first firing in the furnace should be carried out so as not to exceed 30-50% of the nominal power. The first heating causes the thermal layer of the applied silicone paint to harden. The process of fixing the coating takes place. After the first firing, the furnace should be switched off for the night.

NOTICE: it is forbidden to make any structural changes to the furnace.

9.1. Lighting and burning in the furnace

NOTICE:
For igniting fuel in the furnace, it is forbidden to useflammable liquids, the vapours of these liquids form an explosive mixture.

Ignition can be started after making sure, especially after a long standstill, whether the flue pipes and the chimney pipe are clear. It is also necessary to check the deflector for obstructions, and clean it if necessary. Check the hearth and ash pan of the furnace, if necessary, remove the remnants of unburnt fuel and ash. The combustion process should be regulated using the designated manipulators. Depending on the model, forced air furnaces have three adjustable air inlets (primary, secondary and tertiary). The primary air inlet brings air through the horizontal grate and is used to ignite the fuel. The primary air inlet is regulated by tightening, loosening or moving the regulator located at the front of the heater. The secondary air inlet is located above the doors. Secondary air aids the combustion of residual flammable gases in the exhaust gases. Tertiary air enters the combustion chamber through inlets located in the rear wall of the combustion chamber, providing additional air to the combustion process. The force of the tertiary air stream is so great that it creates an additional deflector limiting heat loss. During ignition, when the chimney draft is still too weak, the primary air regulation should be left open, the secondary air open halfway, and the tertiary air completely closed. Once the chimney is heated, the correct combustion process is achieved with the primary air inlet completely closed, the secondary air inlet slightly closed, using only the regulation of the tertiary air inlet. The regulation of primary, secondary, tertiary air should be closed when the furnace is not operating. This significantly prevents uncontrolled air escape from rooms during periods of non-use of the furnace and prevents the specific smell from the chimney from returning to the rooms in case of reverse chimney draft. rooms, in the event of chimney backdraft. Load the fuel into the ash-cleared combustion chamber, the loading weight is given in the instruction table item 11. Level the surface of the fuel, do not tamp down. Through the loading doors, place paper and a few small pieces of wood, light. After the flue gases are drawn into the chimney, close the loading doors. Switch on the blower/fan. In a furnace with microprocessor control, switch the controller to position 1 (optional equipment), on the controller set the desired temperature value, from which the blower is to go into operation. During the initial period of ignition, check several times whether the fuel is burning evenly over the entire surface. Do not use flammable liquids. After lighting the furnace, adjust the flue draught with the flue damper and adjust the quality/power of combustion by setting the amount of primary air supplied by the shutter in the ash pan doors. A sign of poor combustion caused by a lack of sufficient air is the blackening of the flue gases coming out of the chimney. The burning period of the fuel depends on its quality and quantity, therefore the user should experimentally determine the size of the load and the ignition time, not exceeding the permissible value, so that it is convenient for him. The furnace will extinguish itself after the fuel has burned out. To extinguish the furnace before the fuel has burned out: use tools, with particular caution, to drop the embers from the fire grate into a fireproof container with a lid, after several minutes, check whether spontaneous ignition has not occurred in the firebox. Removal of embers from the firebox should be carried out only with the assistance of another person. In case of heavy smoke in the room, not allowing for efficient removal of embers, call the fire brigade.

WARNING: To prevent the escape of flue gases, the combustion chamber and ash pan doors should always be closed, except during ignition, fuel filling and ash removal. During its nominal power, the furnace heats up, especially its external surfaces - during operation they are hot and appropriate caution is required, as well as providing appropriate safety measures.

9.2. Cleaning and maintenance of the PN furnace

Before cleaning, extinguish the furnace, and wait for the necessary time to cool the internal surfaces. During the heating season, it is necessary to clean the furnace firebox, ash pan and pipe. As often as necessary, ash and soot deposits should be removed from the pipe connecting the furnace to the chimney flue. Regularly remove ash from the firebox, soot from the radiant plate of the firebox (plate/deflector in the upper part of the combustion chamber), ash from the ashtray, and do not allow them to overflow. Such cleaning should be carried out each time before lighting the furnace. Periodically check the condition of hinges, handles and seals. To replace the sealing cord, it should be removed from the door groove using a screwdriver; clean the groove, and press in a new cord. Ensure regular inspection of the flue and chimney installation by a chimney sweep. Once a year, the chimney should be checked for tightness. The chimney duct should be cleaned

mechanically at least once during the heating season. Its cleaning should be entrusted to a specialist chimney company. Any furnace repairs resulting from improper operation or mechanical damage should be carried out immediately upon their detection, by the manufacturer's service.

During the operation of the furnace, the user should follow the following guidelines:

1. Careful cleaning has a fundamental impact on correct operation, maintaining good draft and efficiency, economical fuel consumption and the lifespan of the furnace.

2. Poor quality fuel, high ash content and non-combustible compounds, as well as small granularity, cause rapid contamination of the furnace with slag, hinder burning and lighting in the furnace.

3. Humidity in the room, especially the floor and a high water content in the fuel (above 20%), significantly shortens the lifespan of the furnace.

4. Each time the fuel door is opened, it must be preceded by the following actions:
- Close the primary air throttle in the ash door,
- Fully open the flue gas throttle in the chimney,
- Tilt the fuel door (5 mm) and wait, checking if the air draft properly ventilates the fuel chamber.

10. Safety measures during furnace operation

The furnace may only be operated by adults who have familiarised themselves with this operating manual. Children are not allowed to be near the furnace without adult supervision.

The basic element ensuring the safe operation of the furnace is the proper securing of the flue gas discharge to the chimney. The connections of the flue pipe with the furnace and with the chimney during operation must be tight. The draught in the chimney flue should be at least 12 Pa. The pipe connection of the furnace with the chimney made of connected pipes should also be tight at the joints. In addition:

- do not make any modifications to the furnace,

- have an annual inspection of the chimney by a chimney sweep,

- provide suitable fuel for combustion,

- electrical connection of the controller/fan only by authorised persons

- Use only the manufacturer's spare parts,

- during burning, the furnace heats up - do not touch it,

- operate the furnace using protective gloves and dedicated tools,

-do not overload the furnace thermally- do not burn red,

- do not throw any objects into the blower jacket chamber,

- ensure the basic guidelines of the operating instructions to ensure safe operation of the furnace.

IMPORTANT: No smoke should escape from the hot air blowing holes during burning, any such occurrence may indicate a leak in the firebox and the escape of flue gases into the blower jacket - in such a case, the furnace must be URGENTLY extinguished in emergency mode. Report the fault to the manufacturer/distributor. Fresh air should be provided to the room immediately, remembering about flue gases, including undetectable carbon monoxide.

- When emptying the combustion chamber and ash pan, ash should be scooped into a metal or non-flammable container; remember that even seemingly cooled ash can be very hot and cause a fire.

- store flammable items away from the furnace - at a safe distance.

- in case of bad weather conditions and the emission of fumes (smoke) from the furnace, stop burning in the furnace until the disturbances caused by weather conditions subside.

- in case of soot ignition in the chimney, close the air supply to the furnace, evacuate people from endangered rooms, call the fire brigade - detailed procedure point 10.1.

- The furnace is equipped with a hot air blower, it is forbidden to burn in the furnace without a working blower; its electric motor will be damaged in case of lack of rotations cooling the motor and the entire blower.

- Furnace equipped with controller + blower- it is forbidden to use it without a working electrical installation, in case of failure immediately disconnect the device from the electrical network.

- In case of a permanent lack of electricity, the operation of the furnace is not possible. This poses the risk of overheating the blower motor and permanently damaging it. If you want to continue burning without a blower,

to get heat from the furnace, it is absolutely necessary to dismantle the blower.

- take care of the good technical condition of the furnace and the related electrical installation.

10.1. Procedure in case of a flue duct fire

Ignition of soot in the chimney is the ignition of particles accumulated inside the chimney (flue) ducts, which have accumulated during the operation of the device and have not been cleaned by the chimney sweep. In case of a chimney fire, you should:

- by dialling the emergency number 998 or 112, call the FIRE BRIGADE, giving detailed information about what is happening and how to get to the facility,

- extinguish the fire in the furnace in emergency mode, (possibility of burying the furnace with sand, do not flood it with water)

- close all doors tightly and close the damper in the chimney (horizontal position), close the air supply with a slide in the ash door (lack of air can eventually extinguish the fire),

- at all times inspect the entire length of the flue pipe for any cracks, unsealing, threatening the spread of fire into the premises,

- prepare extinguishing means for possible use, e.g., a fire extinguisher, a fire blanket, a hose connected to the water installation, water in a container,

- provide access to the room and provide necessary information to the arriving firefighters.

IT IS STRICTLY FORBIDDEN to flood the chimney with water, as this may cause it to burst.

After a soot fire in the chimney, a chimney sweep should be called to clean the ducts and assess the chimney's suitability for further use.

11. Technical data of the PN furnace

technical data		PN 1	PN 2	PN 3	PN 4	PN 5
Total furnace width	[mm]	350	485	485	580	580
Total height	[mm]	1000	1100	1320	1310	1310
Total depth	[mm]	630	790	790	950	1250
number of bricks	[pcs]	15	21	27	33	45
Furnace weight	[kg]	100	175	210	245	290
Flue outlet diameter	[mm]	120	130	130	150	150
Air outlet diameter	[mm]	2x100	2x120	2x150	4x150	5x150
nominal heating power	[kW]	12	20	25	35	45
required chimney draught	[Pa]	12	12	12	12	12
Fuel load weight	[kg]	3	9	12	15	25
Blower diameter	[mm]	250	300	350	400	450

12. Spare parts

List of spare parts for furnaces:

- cast iron grates,

- Door handles

- doors

- rope, seal in the doors

- fan/blower

- microprocessor controller

Due to the continuous development of products, the development of machinery, the improvement of the manufacturing process, we reserve the right to introduce changes aimed at making our PRODUCT more reliable.

13. Manufacturer's warranty

The warranty period for PN furnaces is 2 years (24 months) and is valid from the date of purchase. We provide a 1-year warranty for the cast iron elements of the furnace. The warranty does not cover consumable parts. The manufacturer provides warranty and post-warranty service throughout the country. At the time of reporting a product complaint, the customer should have a document confirming the date of purchase of the furnace. The condition of the warranty is compliance with the rules contained in the installation and operation manual. The warranty does not cover damage to the furnace resulting from improper connection or faulty operation inconsistent with its purpose, as well as mechanical damage. Complaints are accepted at the phone number:

884 824 082, email: reklamacje@drabiny.info

13.1. The following are not covered by the warranty:

1. The cast iron grate, the grate can only burn out during the combustion of improper fuel.

2. Damage caused by thermal overload of the furnace, including burning other fuel than recommended. Thermal damage causes a significant temporary increase in the temperature of the furnace, destroying its elements. Therefore, burning inconsistent with the operating instructions leads to irreversible destruction of the heater.

3. Paint - the thermal coating gradually burns out under the influence of high temperature. Then the furnace should be repainted with heat-resistant silicone paint.

Separate warranty conditions - for the blower/fan, controller - are determined by the manufacturer of the product.

13.2. The Guarantor guarantees the efficient operation of the furnace, if the conditions specified in the operating manual are strictly adhered to. The Guarantor is not responsible for the effects of normal wear and tear of the goods associated with operation.

13.3. The warranty is granted on the territory of the Republic of Poland. During the warranty period, the Guarantor provides free repair - removal of the physical defect within:

a) 14 days from the date of the report, if the removal of the defect does not require the replacement of structural elements of the goods,

b) 30 days from the date of the report, if the removal of the defect requires the replacement of structural elements of the goods,

13.4. The need to remove a physical defect under warranty repair should be reported on special complaint protocols, filled out by the Customer/distributor and sent to the postal address HIGHER 58-130 Żarów, ul. Armii Krajowej 74

13.5. In case of complaining about improper combustion in the furnace, smouldering, smoke coming out through the feed door, a photocopy of the chimney expert's report, confirming that the chimney flue meets all the conditions contained in the operating manual, should be absolutely attached to the complaint report.

13.6. In case the Guarantor, while being ready to remove the defect, will not be able to carry out the warranty repair twice for reasons on the Buyer's side, it is considered that the Buyer has waived the claim contained in the complaint report. Re-reporting this matter in this mode is impossible.

13.7. If the advertised defect cannot be removed, after three warranty repairs the product still operates defectively, but is suitable for further use, the Buyer has the right to:

a) reduce the price of the goods proportionally to the utility value of the product,

b) exchange the defective goods for goods free from defects,

The exchange of goods for defect-free ones is allowed in the case of the Guarantor determining that repair cannot be carried out.

13.8. The Guarantor is not responsible for the suitability of the goods for the Buyer, including incorrect selection of goods for the size of heated rooms.

13.9. The Guarantor will refuse to fulfil the Buyer's requests arising from this document, in the case when:

a) he determines structural modifications made by the Buyer, making changes affecting the operation of the product, changing its parameters.

b) there is a damage resulting from improper transport, including securing the product for the duration of the warranty shipment, the Guarantor is not responsible for the condition and quality of the transport companies' service.

c) there is a damage resulting from improper assembly and use of the product.

d) the damages are mechanical, chemical, thermal and did not arise from causes inherent in the sold item

e) the damage concerns wear and tear items, in particular: screws, nuts, handles, ceramic elements, plastic elements, seals,

f) damage will occur as a result of using the product in a manner inconsistent with the instruction manual.

14. Types of failures and their removal

Type of fault/failure	Possible cause	Suggested repair
-requiredtemperatureis not reached	-too low calorific value of fuel	-addfuel with a higher calorific value, or replace fuel with required parameters - wait for the firebrick in the furnace to heat up for about 20-45 min
	- improperly performed installation - too	- check the flue installation
	high chimney draught	- throttle the draught with a throttle in the
	- incorrectly selected furnace for the building	- perform calculations of the of the to energy demand
- significant increase in furnace temperature	- too high chimney draught or too high calorific value of fuel	- use a draught regulator in the chimney or use fuel with a lower calorific value
- smoke coming from the door	- lack of chimney draught, too low chimney,	- raise the chimney, increase the chimney cross-section, clean the furnace/chimney
	- damaged cord	- replace the cord
- there is a strong overheating of the chimney	- too high chimney draught	- measure the chimney draught, possibly install a draught regulator
- too high fuel consumption	- incorrectly selected boiler for the building	- perform calculations of the energy demand
	- too low calorific value of fuel	- add fuel with a higher calorific value or replace the fuel with the recommended one
	- low furnace efficiency due to high chimney loss	
		- too high flue gas temperature caused by too high draught or too much air supplied to the combustion chamber
- the furnace does not blow air but draws it in,	- fan rotation in the wrong direction, incorrect fan connection to power supply	- see fan connection instructions, swap the power/current cable according to the diagram provided on the fan's electrical flap. - connect the fan according to the manufacturer's instructions
- controller does not switch on the fan,	- controller damage temperature sensor damage controller damage bad settings	- check the correct operation and settings on the controller, check for mechanical damage to the temperature sensor, check the power cables.
- controller does not regulate the blower speed (additional function)	- electronic controller damage	- report the fault to the manufacturer/distributor

15. Claim form: **NOTICE: CLAIMANT FILLS IN POINTS 2, 3, 4, 5, 6, 7 –**

Incomplete filling of the protocol results in a longer complaint process

1.	Product Manufacturer	HIGHER sp. z o.o. 58-130 Żarów ul. Armii Krajowej 74
2	Complaint protocol no. dated	
3	Date of sale/product name	
4	Included accessories (controller/fan) specify	
5	Company name, surname, collection location of the claimed product CONTACT TELEPHONE	
6	Company name, surname, delivery location of the claimed product CONTACT TELEPHONE if different from point 5	
7	Reasons for the complaint, defects of the product	
8	Final consideration with the result Positive/negative	
9	Date of process completion	
10	Date of dispatch to the recipient/ Parcel no.	
11	Person handling the complaint Signature/date	

HIGHER

DEKLARACJA ZGODNOŚCI UE
DECLARATION OF CONFORMITY EC

Nazwa producenta/*name of manufacturer*: **HIGHER sp. z o.o.**
58-130 Żarów, ul. Armii Krajowej 74

Deklaruje z pełną odpowiedzialnością, że produkowany przez nas wyrób/***declears*** *with all responsibility, that the product*

Nazwa wyrobu/*name of product:* **PIEC NADMUCHOWY PN1 / Forced-air furnace PN1**
O mocy nominalnej / *nominal power* 12,2 kW
Został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi normami/ *has been designed, manufactured and placed on the marketin conformitynorm:*

PN-EN 13240 : 2008 , PN-EN 16510-1:2018-03

wyrób oznaczono znakiem/product has been marked: CE

Procedury oceny zgodności w procesie badania projektu z wymogami dyrektyw zostały wykonane z udziałem JEDNOSTKI NOTYFIKOWANEJ/*procedures of conformity assessment In the process of EC, have been carried as the NOTIFIED BODY*

OIL AND GAS INSTITUTE - State Research Institute KRAKOW notified body no. 1450

Ta deklaracja zgodności traci swą ważność, jeżeli w piecu PN1 wprowadzono zmiany, został przebudowany bez naszej zgody lub jest użytkowany niezgodnie z instrukcją obsługi/ *this declaration of conformity becomes invalid if any changes have been made to the PN1 furnace, if its construction has been changed without our permission or if the product is used not in accordance with the operating manual.*

Piec nadmuchowy Pn1 jest wykonany zgodnie z dokumentacją techniczną przechowywaną przez/ *Forced-air furnace PN1 has been manufactured according to technical documentation kept by:* **HIGHER 58-130 Żarów, ul. Armii Krajowej 74**

Imię i nazwisko osoby odpowiedzialnej za przygotowanie dokumentacji technicznej/*name of the person authorised to compile the technical documentation*: Krzysztof Godlewski

Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta/ *name and signature of the person authorised to compile a declaration of conformity on behalf of the manufacturer:* Krzysztof Godlewski

Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione/*two last digits of the year of marking* : **21**

Miejsce i daty wystawienia/ *place and date of issue*:

Żarów 13.12.2021

MANUFACTURER'S DECLARATION CARD

Solid fuel air heater

Client	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Manufacturer	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Device name	PN 1						
Device weight	kg						
Chimney connection diameter	105 mm						
Declared minimum distance from flammable materials				1500 mm			
Declared minimum distance from flammable materials when built-in (in case of fireplace inserts)				m			
Recommended fuel				Hardwood			
Information on connecting the furnace to the chimney				Each hearth should have a separate chimney			
Device height	990 mm			Depth	720 mm	Width	350mm
Declared heat output	12,2 kW			Declared efficiency		min 75 %	
Min. declared continuous combustion	1 h						
The device is continuously combustible				NO			
Declared emission when converted to 13 %O2	CO	mg/m3		≤ 1500			
	NOx	mg/m3		≤ 200			
	OGC	mgC/m3		≤ 120			
	Dust	mg/m3		≤ 40			
Declared thermal power of the water circuit	- kW			Max. working water pressure		- bar	

Documents provided to the laboratory

- Testing order	yes , no
- Technical documentation, catalogue cards etc.	.. yes, no
- Operating and installation instructions for the device	yes , no
- Approvals of materials from which the device is made e.g., cast iron, glass, glue, sealing cord	yes, no

The choice of heating device for testing was made by the manufacturer based on PN-EN 13240:2008, PN-EN 16510-1:2018-03

Date, surname and first name and signature of the Manufacturer or his Representative

13.12.2021

HIGHER

DEKLARACJA ZGODNOŚCI UE
DECLARATION OF CONFORMITY EC

CE

Nazwa producenta/*name of manufacturer*: **HIGHER sp. z o.o.**
58-130 Żarów, ul. Armii Krajowej 74

Deklaruje z pełną odpowiedzialnością, że produkowany przez nas wyrób/***declears*** *with all responsibility, that the product*

Nazwa wyrobu/*name of product:* **PIEC NADMUCHOWY PN2 / Forced-air furnace PN2**
O mocy nominalnej / ***nominal power*** **20,3 kW**
Został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi normami/ *has been designed, manufactured and placed on the marketin conformitynorm:*

PN-EN 13240 : 2008 , PN-EN 16510-1:2018-03

wyrób oznaczono znakiem/product has been marked: CE

Procedury oceny zgodności w procesie badania projektu z wymogami dyrektyw zostały wykonane z udziałem JEDNOSTKI NOTYFIKOWANEJ/*procedures of conformity assessment In the process of EC, have been carried as the NOTIFIED BODY*

OIL AND GAS INSTITUTE - State Research Institute KRAKOW notified body no. 1450

Ta deklaracja zgodności traci swą ważność, jeżeli w piecu PN2 wprowadzono zmiany, został przebudowany bez naszej zgody lub jest użytkowany niezgodnie z instrukcją obsługi/ *this declaration of conformity becomes invalid if any changes have been made to the PN2 furnace, if its construction has been changed without our permission or if the product is used not in accordance with the operating manual.*

Piec nadmuchowy Pn2 jest wykonany zgodnie z dokumentacją techniczną przechowywaną przez/ *Forced-air furnace PN2 has been manufactured according to technical documentation kept by:* **HIGHER 58-130 Żarów ul. Armii Krajowej 74**

Imię i nazwisko osoby odpowiedzialnej za przygotowanie dokumentacji technicznej/*name of the person authorised to compile the technical documentation*: Krzysztof Godlewski

Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta/ *name and signature of the person authorised to compile a declaration of conformity on behalf of the manufacturer:* Krzysztof Godlewski

Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione/*two last digits of the year of marking* : **22**

Miejsce i daty wystawienia/ *place and date of issue*:

Żarów 11.03.2022

MANUFACTURER'S DECLARATION CARD

Solid fuel air heater

Client	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74					
Manufacturer	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74					
Device name	PN 2					
Device weight	kg					
Chimney connection diameter	125 mm					
Declared minimum distance from flammable materials			1500 mm			
Declared minimum distance from flammable materials when built-in (in case of fireplace inserts)			m			
Recommended fuel			Hardwood			
Information on connecting the furnace to the chimney			Each hearth should have a separate chimney			
Device height	1100 mm		Depth	850 mm	Width	485mm
Declared heat output	20,2 kW		Declared efficiency		min 50 %	
Min. declared continuous combustion	1,2 h					
The device is continuously combustible			NO			
Declared emission when converted to 13 %O2	CO	mg/m3	≤ 2000			
	NOx	mg/m3	≤ 200			
	OGC	mgC/m3	≤ 120			
	Dust	mg/m3	≤ 50			
Declared thermal power of the water circuit	- kW		Max. working water pressure		- bar	

Documents provided to the laboratory

- Testing order — yes , no
- Technical documentation, catalogue cards etc. — .. yes, no
- Operating and installation instructions for the device — yes , no
- Approvals of materials from which the device is made e.g. cast iron, glass, glue, sealing cord — yes, no

The choice of heating device for testing was made by the manufacturer based on PN-EN 13240:2008, PN-EN 16510-1:2018-03

Date, surname and first name and signature of the Manufacturer or his Representative

11.03.2022

HIGHER

DEKLARACJA ZGODNOŚCI UE
DECLARATION OF CONFORMITY EC

CE

Nazwa producenta/*name of manufacturer*: **HIGHER sp. z o.o.**
58-130 Żarów, ul. Armii Krajowej 74

Deklaruje z pełną odpowiedzialnością, że produkowany przez nas wyrób/***declears*** *with all responsibility, that the product*

Nazwa wyrobu/*name of product:* **PIEC NADMUCHOWY PN3 / Forced-air furnace PN3**
O mocy nominalnej / *nominal power* 25,5 kW
Został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi normami/ *has been designed, manufactured and placed on the marketin conformitynorm:*

PN-EN 13240 : 2008 , PN-EN 16510-1:2018-03

wyrób oznaczono znakiem/product has been marked: CE

Procedury oceny zgodności w procesie badania projektu z wymogami dyrektyw zostały wykonane z udziałem JEDNOSTKI NOTYFIKOWANEJ/*procedures of conformity assessment In the process of EC, have been carried as the NOTIFIED BODY*

OIL AND GAS INSTITUTE - State Research Institute KRAKOW notified body no. 1450

Ta deklaracja zgodności traci swą ważność, jeżeli w piecu PN3 wprowadzono zmiany, został przebudowany bez naszej zgody lub jest użytkowany niezgodnie z instrukcją obsługi/ *this declaration of conformity becomes invalid if any changes have been made to the PN3 furnace, if its construction has been changed without our permission or if the product is used not in accordance with the operating manual.*

Piec nadmuchowy Pn3 jest wykonany zgodnie z dokumentacją techniczną przechowywaną przez/ *Forced-air furnace PN3 has been manufactured according to technical documentation kept by:* **HIGHER 58-130 Żarów ul. Armii Krajowej 74**

Imię i nazwisko osoby odpowiedzialnej za przygotowanie dokumentacji technicznej/*name of the person authorised to compile the technical documentation*: Krzysztof Godlewski

Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta/ *name and signature of the person authorised to compile a declaration of conformity on behalf of the manufacturer:* Krzysztof Godlewski

Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione/*two last digits of the year of marking* : **22**

Miejsce i daty wystawienia/ *place and date of issue*:

Żarów 11.05.2022

MANUFACTURER'S DECLARATION CARD

Solid fuel air heater

Client	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Manufacturer	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Device name	PN 3						
Device weight	kg						
Chimney connection diameter 125 mm							
Declared minimum distance from flammable materials			1500 mm				
Declared minimum distance from flammable materials when built-in (in case of fireplace inserts)			m				
Recommended fuel			Hardwood				
Information on connecting the furnace to the chimney			Each hearth should have a separate chimney				
Device height	**1370** mm		Depth	**850**mm	Width	**485** mm	
Declared heat output	**25,5** kW		Declared efficiency		min 50 %		
Min. declared continuous combustion	1,2 h						
The device is continuously combustible			**NO**				
Declared emission when converted to 13 %O2	CO	mg/m3	≤ 2000				
	NOx	mg/m3	≤ 200				
	~~OGC~~	mgC/m3	≤ 120				
	~~Dust~~	mg/m3	≤ 50				
Declared thermal power of the water circuit - kW			Max. working water pressure		- bar		

Documents provided to the laboratory
- Testing order — yes , no
- Technical documentation, catalogue cards etc. — .. yes, no
- Operating and installation instructions for the device — yes , no
- Approvals of materials from which the device is made e.g. cast iron, glass, glue, sealing cord — yes, no

The choice of heating device for testing was made by the manufacturer based on PN-EN 13240:2008, PN-EN 16510-1:2018-03

Date, surname and first name and signature of the Manufacturer or his Representative

11.05.2022

HIGHER

DEKLARACJA ZGODNOŚCI UE
DECLARATION OF CONFORMITY EC

Nazwa producenta/*name of manufacturer*: **HIGHER sp. z o.o.**
58-130 Żarów ul. Armii Krajowej 74

Deklaruje z pełną odpowiedzialnością, że produkowany przez nas wyrób/***declears*** *with all responsibility, that the product*

Nazwa wyrobu/*name of product:* **PIEC NADMUCHOWY PN4 / Forced-air furnace PN4**
O mocy nominalnej / *nominal power* 34,5 kW
Został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi normami/ *has been designed, manufactured and placed on the marketin conformitynorm:*

PN-EN 13240 : 2008 , PN-EN 16510-1:2018-03

wyrób oznaczono znakiem/product has been marked: CE

Procedury oceny zgodności w procesie badania projektu z wymogami dyrektyw zostały wykonane z udziałem JEDNOSTKI NOTYFIKOWANEJ/*procedures of conformity assessment In the process of EC, have been carried as the NOTIFIED BODY*

OIL AND GAS INSTITUTE - State Research Institute KRAKOW notified body no. 1450

Ta deklaracja zgodności traci swą ważność, jeżeli w piecu PN4 wprowadzono zmiany, został przebudowany bez naszej zgody lub jest użytkowany niezgodnie z instrukcją obsługi/ *this declaration of conformity becomes invalid if any changes have been made to the PN4 furnace, if its construction has been changed without our permission or if the product is used not in accordance with the operating manual.*
Piec nadmuchowy Pn4 jest wykonany zgodnie z dokumentacją techniczną przechowywaną przez/ *Forced-air furnace PN4 has been manufactured according to technical documentation kept by:* **HIGHER 58-130 Żarów ul. Armii Krajowej 74**
Imię i nazwisko osoby odpowiedzialnej za przygotowanie dokumentacji technicznej/*name of the person authorised to compile the technical documentation*: Krzysztof Godlewski
Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta/ *name and signature of the person authorised to compile a declaration of conformity on behalf of the manufacturer:* Krzysztof Godlewski
Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione/*two last digits of the year of marking* : **22**

Miejsce i daty wystawienia/ *place and date of issue*:

Żarów 06.06.2022

MANUFACTURER'S DECLARATION CARD

Solid fuel air heater

Client	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Manufacturer	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Device name	**PN 4**						
Device weight	kg						
Chimney connection diameter	**150** mm						
Declared minimum distance from flammable materials			**1500** mm				
Declared minimum distance from flammable materials when built-in			m				
(in case of fireplace inserts) Recommended fuel							
Information on connecting the furnace to the chimney			Hardwood				
			Each hearth should have a separate chimney				
Device height	**1370** mm		Depth	**850** mm	Width	**485** mm	
Declared heat output	**34,5** kW		Declared efficiency		min 50 %		
Min. declared continuous combustion	1,2 h						
The device is continuously combustible			**NO**				
Declared emission when converted to 13 %O2	CO	mg/m3	≤ 2000				
	NOx	mg/m3	≤ 200				
	OGC	mgC/m3	≤ 120				
	Dust	mg/m3	≤ 50				
Declared thermal power of the water circuit	- kW		Max. working water pressure		- bar		

Documents provided to the laboratory
- Testing order — yes , no
- Technical documentation, catalogue cards etc. — .. yes, no
- Operating and installation instructions for the device — yes , no
- Approvals of materials from which the device is made e.g. cast iron, glass, glue, sealing cord — yes, no

The choice of heating device for testing was made by the manufacturer based on PN-EN 13240:2008, PN-EN 16510-1:2018-03

Date, surname and first name and signature of the Manufacturer or his Representative

06.06.2022

HIGHER

DEKLARACJA ZGODNOŚCI UE
DECLARATION OF CONFORMITY EC

Nazwa producenta/*name of manufacturer*: **HIGHER sp. z o.o.**
58-130 Żarów ul. Armii Krajowej 74

Deklaruje z pełną odpowiedzialnością, że produkowany przez nas wyrób/***declears*** *with all responsibility, that the product*

Nazwa wyrobu/*name of product:* **PIEC NADMUCHOWY PN5 / Forced-air furnace PN5**
O mocy nominalnej / *nominal power* 44,5 kW
Został zaprojektowany, wyprodukowany i wprowadzony na rynek zgodnie z następującymi normami/ *has been designed, manufactured and placed on the marketin conformitynorm:*

PN-EN 13240 : 2008 , PN-EN 16510-1:2018-03

wyrób oznaczono znakiem/product has been marked: CE

Procedury oceny zgodności w procesie badania projektu z wymogami dyrektyw zostały wykonane z udziałem JEDNOSTKI NOTYFIKOWANEJ/*procedures of conformity assessment In the process of EC, have been carried as the NOTIFIED BODY*

OIL AND GAS INSTITUTE - State Research Institute KRAKOW notified body no. 1450

Ta deklaracja zgodności traci swą ważność, jeżeli w piecu PN5 wprowadzono zmiany, został przebudowany bez naszej zgody lub jest użytkowany niezgodnie z instrukcją obsługi/ *this declaration of conformity becomes invalid if any changes have been made to the PN5 furnace, if its construction has been changed without our permission or if the product is used not in accordance with the operating manual.*

Piec nadmuchowy Pn5 jest wykonany zgodnie z dokumentacją techniczną przechowywaną przez/ *Forced-air furnace PN5 has been manufactured according to technical documentation kept by:* **HIGHER 58-130 Żarów ul. Armii Krajowej 74**

Imię i nazwisko osoby odpowiedzialnej za przygotowanie dokumentacji technicznej/*name of the person authorised to compile the technical documentation*: Krzysztof Godlewski

Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta/ *name and signature of the person authorised to compile a declaration of conformity on behalf of the manufacturer:* Krzysztof Godlewski

Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione/*two last digits of the year of marking* : **22**

Miejsce i daty wystawienia/ *place and date of issue*:

Żarów 05.08.2022

MANUFACTURER'S DECLARATION CARD

Solid fuel air heater

Client	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Manufacturer	HIGHER sp. z o. o. 58-130 Żarów, ul. Armii Krajowej 74						
Device name	**PN 5**						
Device weight	kg						
Chimney connection diameter	**150** mm						
Declared minimum distance from flammable materials			**1500** mm				
Declared minimum distance from flammable materials when built-in			m				
(in case of fireplace inserts) Recommended fuel							
Information on connecting the furnace to the chimney			Hardwood				
			Each hearth should have a separate chimney				
Device height	**1370** mm		Depth	**850** mm	Width	**485** mm	
Declared heat output	**44,5** kW		Declared efficiency		min 50 %		
Min. declared continuous combustion	1,2 h						
The device is continuously combustible			**NO**				
Declared emission when converted to 13 %O2	CO	mg/m3	≤ 2000				
	NOx	mg/m3	≤ 200				
	OGC	mgC/m3	≤ 120				
	Dust	mg/m3	≤ 50				
Declared thermal power of the water circuit	- kW		Max. working water pressure		- bar		

Documents provided to the laboratory
- Testing order — yes , no
- Technical documentation, catalogue cards etc. — .. yes, no
- Operating and installation instructions for the device — yes , no
- Approvals of materials from which the device is made e.g. cast iron, glass, glue, sealing cord — yes, no

The choice of heating device for testing was made by the manufacturer based on PN-EN 13240:2008, PN-EN 16510-1:2018-03

Date, surname and first name and signature of the Manufacturer or his Representative

05.08.2022

18. Notes