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KOTŁOSPAW

TECHNICAL AND OPERATING DOCUMENTATION
 Operating and Installation Instructions

InPell[®]



BOILER POWER	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW
EQUIPMENT VERSION	BASIC							
	STANDARD							
	PREMIUM							
	ADVANCED							
SERIAL NUMBER								
YEAR OF MANUFACTURE								



KOTŁOSPAW

ORIGINAL

Second Edition

June 2026

Central heating water boilers
with a drop-feed burner for burning pellets

Dear Customer,

we ensure that our products meet the highest standards of quality and safety.

All boilers manufactured by our company are produced in accordance with European directives,
and their compliance is confirmed by the CE Mark and the EU Declaration of Conformity.



Please note!

The boilers meet the requirements regarding:

- emission limits in accordance with PN-EN 303-5+A1:2023-05 – Class 5
 - ecodesign
 - energy efficiency – Class A⁺

Before installing and commissioning the boiler, please read this documentation carefully.

NOTE: If you have any queries or suggestions regarding the contents, please contact us at
handlowy@kotlospaw.pl

Always install and operate the boiler in accordance with applicable regulations and standards.

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1. INTRODUCTION

The heating appliance you have purchased is a latest-generation central heating water boiler that complies with EU directives, regulations and standards at the highest European level, as well as with Polish regulations.

The boilers meet the requirements regarding:

- emission limits in accordance with PN-EN 303-5+A1:2023-05 – Class 5
- eco-design
- energy efficiency – Class A⁺

Polish legislation has already introduced eco-design requirements, which places Polish manufacturers and our company in a favourable light in terms of environmental protection and anti-smog policy.

1.1. General information

The Technical and Operating Manual (DTR) serves as the operating instructions for InPell pellet boilers, covering the principles of the unit's construction, installation and operation. Familiarising yourself with this manual is essential for the correct and safe operation of the boiler.

The automatic and trouble-free operation of the unit depends, amongst other things, on the correct use of the feeder, burner and controller. This DTR contains general information on these components, whilst detailed instructions can be found in the documentation for the individual units, which forms an integral appendix to the boiler.

Before installing and commissioning the boiler, you must:

- read the boiler's technical manual and the instructions for the equipment components carefully,
- check that the delivery is complete and that the details on the rating plate match those on the warranty certificate,
- check that the boiler has not been damaged during transport.

The boiler is fitted with a nameplate located in a visible position, which contains the following information:

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ul. Szenia 38, 63-300 Pleszew

tel. 62 741 80 41 / gsm. +48 600 494 315

kotlospaw@kotlospaw.pl

Typ urządzenia

KOCIOŁ PELLETOUY

Typ InPell

7 kW

Moc nominalna

kW

7

Zakres mocy

kW

2,1-7

Nominalne obciążenie cieplne

kW

7,7

Zakres obciążenia cieplnego

kW

2,3-7,7

Max. ciśnienie robocze

bar

2

Max. dop. temp. robocza

°C

85

Zasilanie elektryczne

~230V/50Hz; 0,5-4A

Pobór mocy – praca nom.

W

27

Pobór mocy – praca min.

W

15,9

Pobór mocy – praca max.

W

222,1

Pojemność wodna

L

25

Rok budowy

Nr seryjny

Klasa kotła

5

Kategoria kotła

1

Tryb pracy kotła

bez kondensacji

Klasa paliwa wg PN-EN 303-5+A1:2023-05

pellet drzewny

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The 'InPell' boiler is fitted with a modern drop-feed burner and a combustion controller. The overpressure combustion technology used eliminates the risk of flame-back, improves the combustion process, reduces fuel consumption and helps maintain a comfortable temperature indoors.

Connection of the central heating system components to the boiler and the controller should only be carried out by a qualified installer.

The boiler is covered by a warranty, the terms of which are set out in the manual and the warranty certificate.

Despite the safety measures in place, operating the boiler always carries a risk of burns or fire — therefore, safety rules must be strictly observed.

The operating instructions and declarations of conformity for the equipment included with the boiler form an integral part of this Technical Operating Manual.

1.2. General rules of use and warranty conditions

InPell boilers are intended solely for installation in enclosed boiler rooms. Any other applications or use not in accordance with this Technical Data Sheet are prohibited. The appliance may only be operated and serviced by adults, and the user bears full responsibility for its safe operation.

Before commissioning the boiler, you must read the boiler manual and all other documentation carefully to ensure you fully understand how the appliance works and comply with all recommendations. You must also strictly adhere to health and safety regulations and accident prevention guidelines.

PLEASE NOTE!

Malfunctions and faults in the boiler's operation resulting from a lack of familiarity with the Technical Data Sheet are not eligible for a complaint.

In particular:

- incorrect selection of boiler size for the building or premises to be heated,
- incorrect connection of the boiler and the central heating system,
- use of unsuitable fuel (type, particle size, calorific value),
- safety measures in the boiler's open system not complying with PN-91/B-02413,
- safety measures in a closed boiler system not in accordance with PN-EN 12828,
- use of a chimney that does not comply with the requirements,
- failure to carry out boiler cleaning and maintenance,
- mechanical damage,
- inadequate ventilation of the boiler room,
- failure to carry out annual boiler inspections by the manufacturer's service team.

1.3. Scope of supply

The boiler is supplied as a compact unit comprising the boiler body and burner, together with the feeder. The boiler body is connected to the equipment and covered with thermal insulation made of mineral wool, covered with a protective steel sheet casing, forming an aesthetically pleasing, integrated whole. An integral part of the boiler is the burner designed for burning wood pellets, the fuel hopper, the pellet feeder, the control unit, as well as the technical documentation and warranty certificates.

The scope of supply comprises:

- boiler body – heat exchanger with complete insulation



- a drop-feed burner,
- pellet feeder
- exhaust fan,
- controller – ecoMAX 860P-KT or TECH ST-900,
- boiler maintenance tools
- operating instructions for the boiler and components
- set of cables and sensors for the boiler controller
- 2 x M12 eye bolts with threads for moving the boiler,

1.3. equipment versions

Boiler version	Exhaust fan	Igniter	InGlow system	Automatic burner cleaning	Pressure sensor	Automatic heat exchanger cleaning	Hydrobox
BASIC	YES	YES	YES	YES	-	-	-
STANDARD	YES	YES	YES	YES	YES	-	
PREMIUM	YES	YES	YES	YES	YES	YES	
ADVANCED	YES	YES	YES	YES	YES	YES	YES

Depending on the selected configuration, the InPell boiler may consist of:

- **InGlow**

A control system for the LED strip located in the moulding above the boiler door, which depending on the operating mode selected on the boiler controller, indicates:

- **Green – steady light:** the boiler is operating in normal mode.
- **Amber – flashing light:** monitoring mode (MONIT).
- **Orange – steady light:** the boiler is in the process of shutting down.
- **Red – steady light:** the boiler is switched off.
- **Red – flashing light:** an alarm has been triggered during boiler operation.



LED bar colour indicating current operating status

- **Automatic burner cleaning**

A system which opens and closes a flap located in the burner during the burner shutdown process. This ensures that the combustion chamber remains clean and ready for the next operating cycle without any user intervention. The combustion chamber is fitted with two scrapers which effectively remove ash, including caked deposits and scale.

- **HydroBox kit**

The HydroBox is a factory-assembled, ready-to-install hydraulic kit designed to work with the InPell boiler. The system enables central heating (CH) and domestic hot water (DHW) supply, utilising a circulation pump, a CH/DHW changeover valve and a temperature-controlled safety valve for the boiler return. The entire kit is integrated directly onto the boiler, meaning that when installing the system in an open circuit, no intervention by a plumber is required within the boiler system itself. The installer simply connects the system's pipework to the HydroBox kit. In a closed circuit, a cooling valve must be fitted.



- 1 – safety unit with automatic air vent, pressure gauge and safety valve,
- 2 – boiler supply connection with an expandable hose,
- 3 – drain from the safety valve,
- 4 – central heating / domestic hot water circuit supply
- 5 – central heating / domestic hot water supply
- 6 – DHW circuit return
- 7 – return from the central heating circuit
- 8 – Central heating / domestic hot water changeover valve
- 9 – Boiler return temperature safety valve,
- 10 – Electronic circulation pump 25/60/130
- 11 – four-way valve with drain valve and gland for the return temperature sensor,
- 12 – non-return valve.

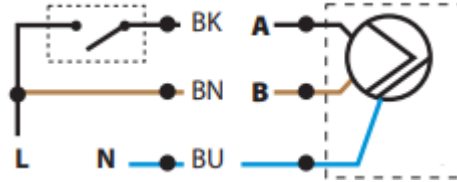
Ensure that the changeover valve is correctly connected to the mains supply.

In most cases, three wires are used:

Brown – 230V mains supply,

Blue – neutral wire (pin 17 in module A),

Black – hot water pump phase output (pin 16 on the module),



The connection may vary depending on the valve manufacturer.

The kit includes an 8-litre expansion vessel, which protects the boiler and the small plumbing system. For systems with a larger water capacity, an additional expansion vessel must be fitted to the central heating system.



Installation of the expansion vessel with the 'Hydrobox' kit beneath the boiler insulation.

- **ecoPress pressure sensor**

A port installed in the boiler heat exchanger is used to measure the pressure within the heat exchanger, resulting in appropriate regulation of the extract fan. This regulation works perfectly in situations where chimney draught varies, as the fan speed is automatically adjusted depending on external conditions and the type of fuel used.

- **Automatic boiler cleaning**

The unit can be fitted with a motor to perform automatic cleaning of the heat exchanger. This ensures the boiler maintains high efficiency, whilst ash from the fire tubes falls directly into the boiler ash pan.

The flap is closed abruptly by a tensioning mechanism, and the resulting shock causes any remaining debris to fall from the walls of the combustion chamber.

1.4. Transport of the boiler

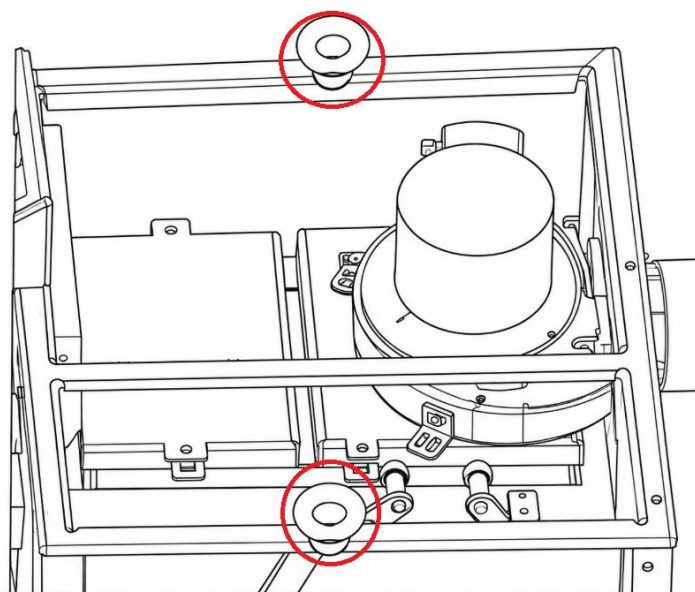
When transporting a boiler, it must be secured against movement and tilting on the vehicle's flatbed

using straps, wedges and wooden blocks fixed to the flatbed. The boiler must be transported in an upright position; small boilers are best transported on pallets. Lifting and lowering the boiler should be carried out using transport handles and slings, with mechanical hoists and cranes.

1.5. Moving the boiler

The boiler must be transported to the installation site with care, given its weight and dimensions. Pipes laid on the floor may be used to move it. The entire process should be supervised by a single responsible person — preferably the installer who will be fitting the unit — who should select the appropriate method for moving and positioning the boiler.

The InPell boiler is fitted with special mounting points allowing two screws with M12 lugs. Once these are secured, a 28 mm diameter steel pipe can be threaded through the lugs, facilitating the safe transport of the boiler to the installation site. The diagram below illustrates how to fit the lugs:



Marking the installation points for the M12 handles to be screwed in when moving the boiler.

2. DESCRIPTION AND PURPOSE OF THE ‘ ‘

InPell central heating water boilers are solid-fuel appliances fitted with a feed-in burner for burning pellets and a high-quality automatic combustion control and regulation system. They are designed to supply central heating systems in various types of buildings and to provide domestic hot water; they have been designed and manufactured as low-heat-output boilers and are intended primarily for small buildings, detached houses and flats.

3. TECHNICAL AND OPERATIONAL CHARACTERISTICS

InPell boilers meet the Ecodesign requirements regarding emissions, efficiency and performance at both rated power (100%) and minimum power (30%). Performance at low load is crucial, as during the heating season the units operate on average at around 50% of their rated power. The boilers achieve a stable efficiency of over 90% across the entire operating range, comparable to gas and oil boilers, making them a viable alternative given current fuel prices.

InPell stands out for its simple, integrated design and convenient operation thanks to an automatic fuel feeding system, which allows for smooth power regulation and maintenance of the desired water temperature. Operation is limited to refilling the pellets and periodically removing a small amount of ash.

3.2 Technical specifications

	Boiler type: InPelL			7	9	11	13	15	18	22	26
1.	Nominal boiler output		kW	7	9	11	13	15	18	22	26
2.	Boiler power range		kW	2.1 – 7.0	2.7 – 9.0	3.3 – 11.0	3.9 – 13.0	4.5 – 15.0	5.4 – 18.0	6.6 – 22.0	7.8 – 26.0
3	Approximate floor area of the heated building		m²	up to 70	70–90	90–110	110–130	130–150	150–180	180–220	220–260
				up to 95*	95–120*	120–150*	150–180*	180–210*	210–240*	240–290*	290–350*
3.	Thermal efficiency at rated power		%	91.41	91.4	91.4	91.44	91.4	91.3	91.2	91.09
4.	Thermal efficiency at minimum power			90.07	90.3	90.6	90.79	90.7	90.6	90.4	90.18
5.	Boiler class according to PN EN-303-5+A1:2023-05			5							
6.	Storage tank capacity		l	~ 40				~ 65			
7.	Weight of the set without water		kg	160				210			
8.	Boiler water capacity		l	25				47			
9.	Fuel		l	Pellets; Diameter 6 ±1 mm, Length 3.15 mm to 40 mm Dust content ≤ 1%; Bulk density ≥ 600 kg/m³ – 700 kg/m³ Moisture content ≤ 12%; Calorific value > 17 MJ/kg; Ash content ≤ 0.5%							
10.	Maximum inlet water temperature		°C	85							
11.	Minimum return water temperature		°C	50							
12.	Controller setting range		°C	55–85							
13.	Water flow resistance:	Δt = 20 K	mbar	1	1.1	1.7	2.4	3.1	4.5	6.7	9.4
		Δt = 10 K		4	6.2	9.2	13	17	25	37	52
14.	Operating pressure		bar	2							
	Test pressure			4							
15.	Exhaust gas temperature at	rated power	°C	102	114	125	137	134.8	131.6	127.3	123
		minimum		56	63	71	78	77.2	76.1	74.5	73
16.	Exhaust gas mass flow rate at	rated	kg/h	6.5	7.6	8.6	9.7	11.8	14.8	18.9	23
		minimum		1.9	2.4	3	3.5	4.1	5.0	6.1	7.3
17.	Smouldering time		days	2–4	2–4	2–4	2–4	2–4	2–4	2–4	2–4
18.	Flue pipe cross-section dimensions		ø	80				100			
19.	Required flue draught		Pa	6	8	11	13	14	16	18	20
20.	Electrical connection			AC 230/50 Hz							
21.	Power consumption in standby mode (230V/50Hz supply)		W	8	8	8	8	8	7	6	4.7
22.	Electricity consumption	when the boiler is operating at rated output	W	27	29.2	33.7	35.9	40	47	56	65.1
		when the boiler is operating at minimum output		15.9	17.9	18.9	19.8	20	20	21	21.4
		maximum intake		222.1	222.1	222.1	222.1	224.1	227.1	231	235.3
23.	Noise level		dB	< 75							

*insulated building

4. SELECTION OF A BOILER FOR THE HEATING SYSTEM.

In order to select the correct boiler, the calculated heat demand resulting from heat loss through thermal transmission, as well as the heat required for ventilation and domestic hot water, must be taken into account. The building's heat balance should be prepared by the designer in accordance with the applicable standards.

PLEASE NOTE!

The manufacturer accepts no liability for the incorrect selection of a boiler.

4.1. Unit heat demand indicators for residential buildings.

To determine the estimated heat demand for heating a residential building, the average values of the unit heat demand coefficients listed below may be used.

- $q=90-120 \text{ W/m}^2$ – for buildings with average insulation (aerated concrete walls, sandwich walls without thermal insulation, double-glazed windows).
- $q = 80-60 \text{ W/m}^2$ – for well-insulated buildings (insulated aerated concrete walls, insulated windows with double glazing, 'underfloor heating').

5. TYPES OF FUEL

The fuel used in InPell boilers is pellets. Before commissioning, and also after every change or delivery of fuel, it is essential to carry out the so-called 'FEEDER TEST' (see the controller manual). This has a significant impact on the correct and trouble-free operation of the appliance.

Detailed requirements regarding the quality and properties of the pellets are set out in the manual for the burner used with the boiler.

The burner should be fuelled exclusively with pellets having the following properties:

Particle size	pellets
Diameter	$6 \pm 1 \text{ mm}$,
Length	3.15 mm to 40 mm
Dust content	$\leq 1\%$
Bulk density	$\geq 600 \text{ kg/m}^3 - 700 \text{ kg/m}^3$
Moisture content	$\leq 12\%$
Calorific value	$> 17 \text{ MJ/kg}$
Ash	$\leq 0.5\%$

Pellets must be delivered and transported in completely dry conditions.

When exposed to moisture, the pellets lose a great deal of their quality and are very difficult to burn.

Pellets should be stored in dry rooms, protected from external influences.

IMPORTANT!

The boiler's declared performance parameters can only be achieved when using suitable fuel that complies with the manufacturer's recommendations. Only use pellets whose type and properties are specified in the operating instructions (DTR) for the burner fitted in the boiler in question.

Using lower-quality fuel may lead to combustion problems, reduced efficiency, increased wear and tear on components, and premature damage to the boiler and burner. The boiler is not designed for burning waste or any fuels other than those specified in the technical documentation.

The use of unsuitable or substitute fuels is prohibited and places full responsibility on the user. It may result in failure to meet Class 5 and Ecodesign requirements, a reduction in thermal and technical performance, operational problems and a significant reduction in the service life of the appliance. Furthermore, it exposes the user to the consequences arising from applicable environmental protection regulations and anti-smog policies.

6. CONSTRUCTION DESCRIPTION

General design

The InPell boiler series consists of several modules:

- the heat exchanger body,
- a fuel feeding unit (tank, screw feeder, burner),
- a control system,
- thermal insulation.

The boiler body is constructed using a **bent-and-welded** design, which minimises the number of welded joints, which improves the unit's tightness and durability. The boiler is fitted with 1" connection ports (feed and return), a ½" drain port and temperature sensor sleeves. The boiler also features inspection doors at the front and top of the heat exchanger, an exhaust fan and a partitioned ash pan drawer. The entire unit is encased in thermal insulation, and the moving and drive components of the feeder are protected by guards, ensuring safe operation. The boiler operates under negative pressure on the flue gas side.

Firebox

The furnace comprises the combustion chamber and ash pan, within which a drop-feed pellet burner with a screw-type fuel feeder is installed. The feeder's function is to precisely feed pellets to the burner head, where the combustion process takes place.

The air required for combustion is drawn in by an exhaust fan, which forces air flow through the primary and secondary air inlets of the burner, thereby stabilising the combustion process.

Immediately surrounding the firebox is a water jacket, which absorbs heat from the radiation zone and transfers it to the convection section of the boiler.

Convection section

The convection section consists of a vertical, tubular flame-tube heat exchanger housed in the water-filled space behind the furnace. The flue gases from the combustion chamber flow sequentially:

1. through the firetubes with swirlers,
2. to the return chamber located at the bottom of the boiler,
3. then through a second vertical convection pass,
4. to the exhaust fan, and then to the flue.

The return chamber has an access hatch, allowing for cleaning and maintenance.

The use of several heat exchanger sections and forced changes in the direction of flue gas flow intensify heat exchange, whilst simultaneously causing some dust to settle out and reducing emissions.

This configuration of the convection pass ensures high thermal efficiency of the boiler.

Upper cleaning hatches

The boiler is fitted with cleaning hatches, which are located at the top in the heat exchanger zone. They are used to clean and remove debris from the vertical flues. They also provide access to the flue gas turbulators and allow them to be removed during cleaning.

Flue pipe

This is the component connecting the boiler's final flue gas duct to the chimney. It extends from the exhaust fan in the upper rear part of the boiler. The flue pipe connection is circular in shape.

Installation and measurement connections



The boiler is fitted with threaded supply and return connections, a drain connection and measuring sleeves. The feed water connections are located on the rear wall at the top of the boiler, whilst the return water connections are at the bottom. The drain connection is situated on the right-hand side of the boiler at the bottom, and the measuring sleeves are on the right-hand side at the front of the heat exchanger. The boiler has no other measurement ports.

Thermal insulation

This consists of mineral wool housed in steel sheet cassettes, which are either coated or painted on both sides, ensuring a safe external surface temperature.

WARNING!

It is strictly forbidden to open the furnace door whilst the boiler is in operation!

Burner with feeder

The burner is mounted on the side of the boiler, and a screw feeder driven by a gear motor transports pellets from the hopper to the burner head in the firebox. The burner used ensures:

- high safety (temperature control, protection against flashback),
- reliable combustion,
- modern control of the ignition process, flame monitoring and power regulation.

Microprocessor controller

The controller, located on the front of the boiler, controls the operation of the feeder, the burner and the entire combustion process based on signals from sensors and the set temperature. It also monitors the operation of components working in conjunction with the burner. Built-in safety features ensure that the boiler is shut down in the event of a fault.

It enables control of:

- the central heating circuit,
- the domestic hot water circuit,
- additional heating circuits, including those using a weather sensor.

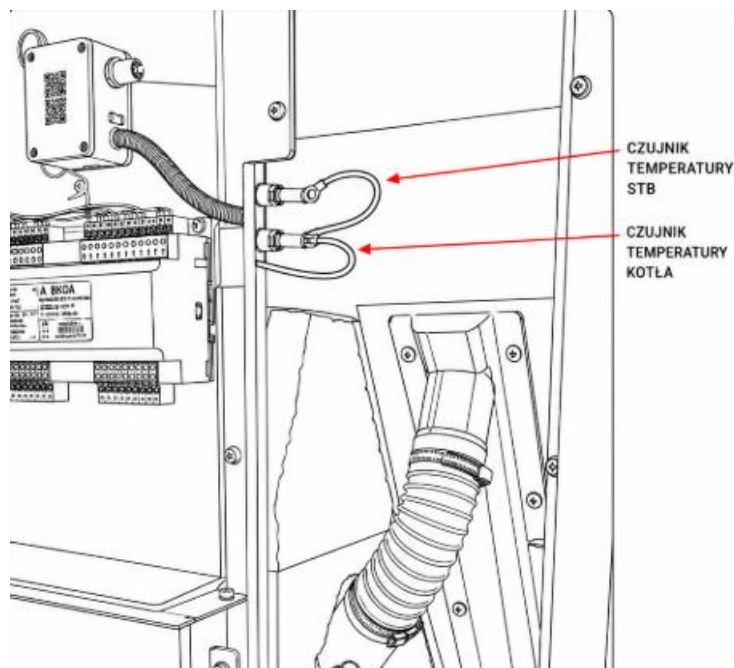
The controller ensures automatic and efficient operation of the pellet boiler.

6.1. Types of safety features on the boiler

The controller is fitted with fault sensors and will shut down the boiler and signal alarm conditions via a visual or audible alert on the control panel in the event of:

- temperature protection (boiler temperature sensor and STB) – exceeding the maximum permissible water temperature in the boiler,
- protection against flue gas backflow into the storage tank – spiral pipe,
- Hall effect sensor – safety device for the position of the furnace grate,
- fuel shortage protection – shuts down the entire system and extinguishes the burner.

The STB thermal protection acts as a water temperature limiter and prevents the temperature from exceeding the limit by completely shutting down the boiler should the maximum permissible temperature be reached. The use of the STB protection means that the limiter can only be reset manually, which is a prerequisite for restarting the boiler and continuing its operation. When restarting the burner, the cause of the shutdown due to boiler overheating must be investigated, assessed and appropriate action taken to rectify the cause.

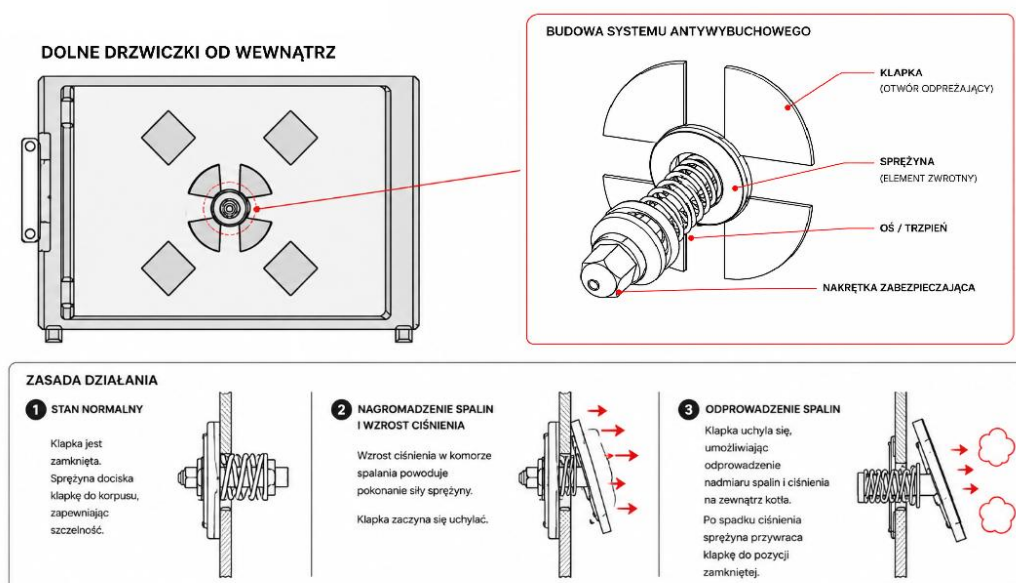


6.3. Combustion chamber explosion protection system

The boiler is fitted with a mechanical explosion protection system, located in the lower door of the unit. The purpose of this system is to limit the effects of any build-up of flammable gases or combustion products in the combustion chamber.

The safety device consists of a special spring-loaded inspection and pressure-relief flap. In the event of a sudden increase in pressure inside the combustion chamber, caused by the ignition of accumulated gases, the flap opens automatically, allowing the excess flue gases and pressure to be vented in a controlled manner outside the boiler.

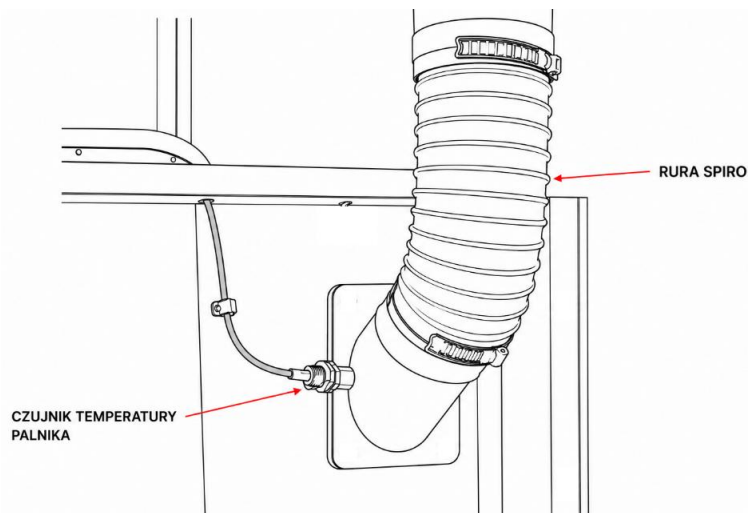
This solution reduces the risk of damage to the boiler's structural components and enhances the safety of its operation. Once the pressure has stabilised, the flap returns to the closed position thanks to the spring mechanism.



6.3. Burner safety systems

The burner is equipped with the following safety systems, which effectively protect the user against flame-back. The main safety features include:

- a burner temperature sensor which, upon detecting that the heating medium temperature has exceeded the set alarm temperature, switches from operating mode to shutdown mode, switching off the external feeder and setting the fan to 100% power,
- a flexible Spiro pipe, which acts as a flexible connection between the external feeder and the burner itself. Its main function is to supply fuel to the burner; it also acts as a back-flame safety device. When exposed to high temperatures, the hose will burn through, preventing further fuel supply.



7. INSTALLATION OF BOILERS IN THE SYSTEM.

Before connecting the boiler to the heating system, please read the operating instructions and check that all components are in good working order, and that the boiler is fully equipped and complies with the delivery specification. InPell boilers should be installed in accordance with the boiler's technical documentation, the boiler room design, the requirements for ventilation

and flue gas discharge, as well as the quality of the boiler feed water. The location and equipment of the boiler room should comply with the standards for 'Built-in solid fuel boiler rooms'.

IMPORTANT!

For safety reasons, all boiler installations should be carried out with particular care, utilising the current state of knowledge and technology in accordance with recognised engineering practice.

The boiler must be protected exclusively:

- in accordance with PN-91/B-02413 – open system or
- in accordance with PN 12828 – closed system.

7.1. Boiler positioning

The method of moving and positioning the boiler should be adapted to the conditions of the premises, the condition of the floor surface, any obstacles, slopes, etc. Particular attention should be paid to the safety of hands and feet and the risk of the boiler tipping over. In principle, the boiler does not require a foundation and may be placed directly on a non-combustible floor. It is recommended that the boiler rest on a platform or plinth approximately 5–10 cm above the floor. The boiler should be carefully levelled, and the load-bearing capacity of the ceiling and the floor on which it is placed must be sufficient to support the weight of the boiler and the water it contains. The boiler must be placed on a floor made of non-combustible materials.

Note!

Ensure unobstructed access to the boiler from all sides, particularly from the front

and from the side, so as not to hinder the loading of fuel, cleaning of the burner, furnace, ash pan and convection channels, or the removal of deposits.

One of the conditions for the boiler to operate properly is a sufficient supply of fresh air; therefore, the boiler room should have appropriate natural ventilation openings above the floor and near the ceiling – a supply and exhaust system – with the supply air preferably channelled via a 'Z'-type duct. The room in which the boiler is installed should meet the ventilation requirements for this type of facility and comply with regulations and standards.

IMPORTANT!

The use of mechanical extract ventilation in the boiler room is prohibited.

7.2. Flue gas system

The correct selection of the flue system — in particular its diameter — is crucial for the safety, proper operation and efficiency of the boiler. Only systems with valid approvals should be used. In accordance with the Building Act, every flue system must bear the CE mark, and the manufacturer is obliged to issue a Declaration of Performance, which confirms compliance with safety, health and environmental protection requirements.

Selecting a chimney system for a new-build

In this case, the most appropriate solution is a modular ceramic chimney with a diameter matched to the appliance's output. The system must be insulated, resistant to soot fires, suitable for operation in wet mode and highly resistant to condensation. The flue must be marked as follows:

1. EN13063-1 T600N1D3G50
2. EN 13063-2 T400N1W3O00
3. EN 13063-3 T200P1W3O00

Systems with a core made of **isostatically pressed ceramic** offer the best resistance to condensation. This ceramic is characterised by the highest resistance to water absorption and permeation. The thin-walled pipe has low thermal inertia, allowing it to heat up quickly and ensuring optimal operating conditions for the boiler. Such a pipe should be marked in accordance with EN 1457-1 and EN 1457-2. For pellet boilers, the ceramic flue should comply with class WA, as follows:

1. EN 1457-1 xxx – A3P1-WA
2. EN 1457-2 – XXX D4P1 – WA

Selection of a chimney system for existing buildings where the heating system is being replaced

When modernising a boiler room, the existing chimney flue must be protected against the corrosive effects of condensation. Depending on technical feasibility, it is recommended to install an acid-resistant or ceramic liner.

The acid-resistant liner should be made of high-grade 1.4404 (316L) steel, 1 mm thick, and bear the CE mark in accordance with standard EN 1856-2, as shown below

EN 1856-2 T600N1WVmL50100GXX. An oval-shaped liner may be installed provided that its cross-sectional area corresponds to the selected diameter of a circular liner. Liner with a square or rectangular cross-section must not be installed. The liner must not protrude more than 10 cm above the top of the brick chimney. If it is necessary to extend the chimney, this must be carried out using insulated construction with an outer stainless steel casing and a flue outlet.

If the flue shaft's cross-section is sufficiently large, or if it is possible to mill it out, the installation of an isostatically pressed ceramic liner, compliant with EN 1457-2, is recommended.

The installation of external insulated chimney systems is permitted. Such chimneys must have insulation of at least 50 mm, and the inner core must be made of acid-resistant steel or isostatic ceramic. For external chimneys, the wall penetration components must be prefabricated insulated units.

To improve the performance of the chimney and boiler, it is recommended that brick chimneys running through a cold, unheated area be insulated with non-combustible wool.

Selection of diameter

A correctly selected chimney diameter is essential for the boiler to operate properly.

- A diameter that is too small causes flue gases to become trapped in the combustion chamber and disrupts the combustion process. In some cases, fitting an exhaust fan may help.
- A diameter that is too large leads to excessive chimney draught, increased chimney heat loss, and even flame disruption and rumbling in the boiler. A draught regulator may provide a solution.

The optimum diameter should be determined in accordance with the PN-EN 13384-1 standard, preferably using available calculation programmes based on this standard. When selecting the diameter, the type and layout of the chimney, its length and the flue components must be taken into account.

No more than one appliance must be connected to a single flue duct.

The optimum pressure for flue pipes is given in the **Technical Data** table on page 11.

Components of a vertical flue gas discharge system

The flue must be fitted with an inspection opening, sealed with a tight-fitting door, and a condensate drainage system.



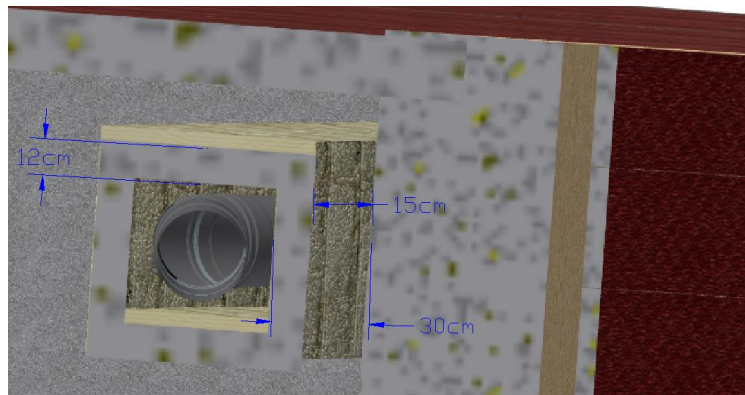
Requirements for the flue pipe/connection section of the flue gas discharge system

The flue pipe connecting the appliance to the vertical flue must be routed along the shortest possible path, with as few bends and curves as possible. The direction of the flue gas flow must not be altered directly at the boiler. The first bend should be located approximately 30 cm behind the boiler. All bends with an angle of 90° or greater must have inspection holes. The flue pipe should be routed with a downward slope towards the boiler. Connect the flue pipes with the socket ends facing the flue connection tee. This will prevent condensate from leaking out. A component must be fitted immediately in front of the boiler to allow the condensate forming in the flue section to be drained off. Condensate must not enter the boiler.



Fire safety

Flue gas ducts should be made of non-combustible materials. The ducts or the casing of flue gas and smoke ducts should meet the requirements set out in the Polish Standard concerning fire tests for small chimneys. It is permissible to construct the casing referred to in paragraph 2, from 12 cm thick solid bricks, laid with cement-lime mortar, with external plaster or jointing. Flue pipes should be situated at least 0.3 m away from flammable, unprotected structural parts of the building, and at least 0.15 m away from those protected by a 25 mm thick plaster rendering on mesh or an equivalent cladding. Connection pipes/flue pipes and cleaning openings should be at least 0.6 m away from flammable, unprotected structural parts of the building, and at least 0.3 m away from those protected by a 25 mm thick plaster coating or an equivalent coating. These distances should be based on the Declaration of Performance for the chimney system or steel flue components used. Each system has different declared distances.



7.3. Central heating installation

Once the boiler has been positioned and connected to the chimney, it must be connected to the central heating system, including:

- connect the boiler supply pipe to the central heating system,
- connect the return pipe,
- fill the system with water,
- connect the controller and check that the electrical installation is correct.

7.4. Boiler safety measures in an open system

Basic requirements for an InPell boiler operating in an open system:

- an expansion vessel with a capacity in accordance with clause 2.5.1 of standard **PN-91/B-02413**,
- a safety pipe with a diameter selected in accordance with Table 1,
- pipes: expansion, signal, overflow, vent and circulation (to protect the vessel from freezing),
- no valves or gate valves **may** be fitted to the safety pipe; it must be free from constrictions and sharp bends,
- if the safety pipes cannot be routed in the shortest and straightest possible way, their routing and diameters must comply with the requirements of standard **PN-91/B-02413**.

NOTE!

The manufacturer accepts no liability for incorrect boiler operation caused by a faulty and non-compliant central heating installation.

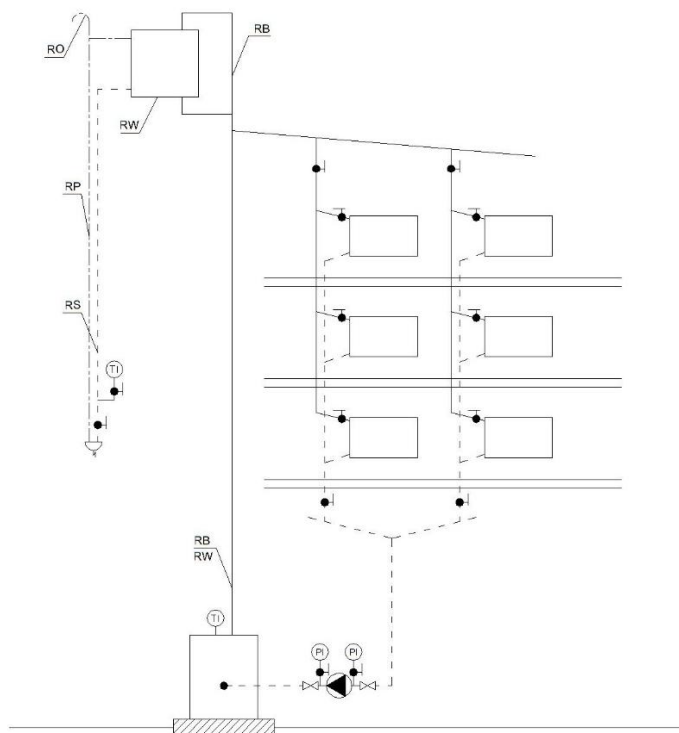
Water loss from the system may indicate a leak and is unacceptable, as it leads to the formation of limescale and may cause permanent damage to the boiler. When connecting the boiler to an existing central heating system, the installer is obliged to check its technical condition (tightness, cleanliness, fittings, etc.). The correct performance of these tasks and the installation of the boiler must be confirmed in writing — this is a condition for the warranty to be valid. The connection of the boiler to the central heating system should be carried out by a company with the appropriate authorisation, and the correctness of the installation must be confirmed in the warranty certificate.

Examples of safety circuit diagrams for an open system in accordance with PN-91/B-02413 are shown in Fig. 1b. Table 1 lists the nominal diameters of the safety and expansion pipes, adapted to the boiler's output.

Table 1

Wielkość rur zabezpieczających kocioł w układzie otwartym wg PN-91/B-02413					
Moc cieplna kotła [kW]		rura bezpieczeństwa [mm]		rura wzbiornicza [mm]	
od	do	Ø nominalna	Ø wewnętrzna	Ø nominalna	Ø wewnętrzna
0	40	25	27,5	25	27,2
40	85	32	35,9		
85	140	40	41,8		

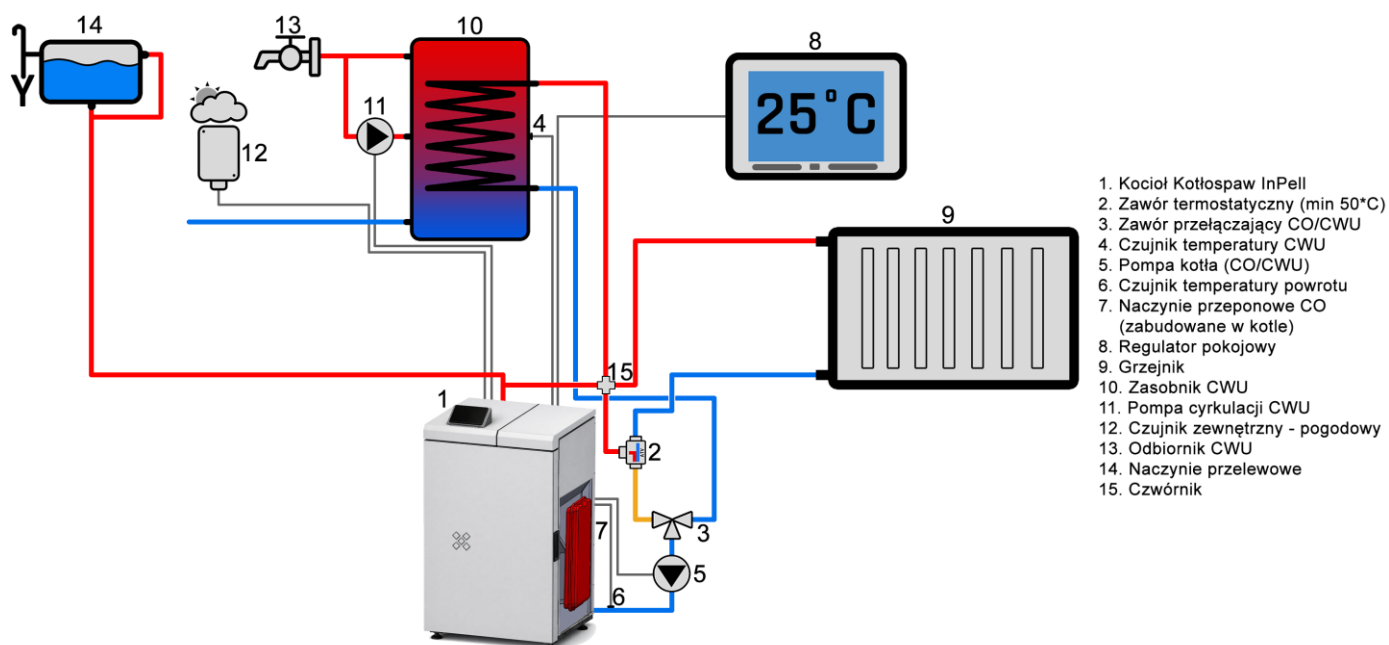
Hydraulic diagrams



Rysunek 1b

Schemat zabezpieczenia instalacji ogrzewania wodnego, wyposażonej w jeden kocioł lub wymiennik ciepła, rozdzielą górną, pompa zamontowana na powrocie wg PN-91/B-02413.

Boiler in an open system with a changeover valve



NOTE!

The hydraulic diagrams shown do not replace central heating system designs and are for illustrative purposes only!

7.5. Boiler protection in a closed system

InPell boilers operating in a closed system with a diaphragm vessel must be fitted with safety devices in accordance with the applicable regulations. These units comply with the requirements of EU directives right from the design and manufacturing stages. All boiler components are accompanied by declarations of conformity and their own instructions, which form an integral part of this Technical Data Sheet. The same requirements apply to system accessories — in particular the thermal protection, safety valve and the diaphragm vessel.

Note: The use of fittings or valves of unknown origin is prohibited.

7.5.1. Boiler protection

In closed systems, the boiler and the system should be fitted with:

- a cooling valve (drain and fill valve),
- a safety valve,
- a diaphragm vessel.

The Hydrobox kit includes an 8-litre diaphragm vessel, designed to protect the boiler and systems with a small water capacity. For systems with a larger volume, an additional diaphragm vessel must be fitted in the central heating circuit.

7.5.2. Drain and fill valve.

The drain and fill (cooling) valve provides thermal protection for the boiler in closed heating systems that do not have a built-in cooling heat exchanger. The valve consists of thermally controlled components: a non-return valve, a pressure reducer, and fill and bleed valves, all activated by a capillary sensor. It operates by allowing cool water from the mains to enter the boiler whilst simultaneously draining hot water from the system. The cooling flow rate must be selected in accordance with the cooling parameters (Table 3) — it must be neither too low nor excessive.

The valve provides an integrated combination of pressure-reducing, filling and bleed functions.

- The filling connection must be connected to the mains water supply and the boiler return connection,
- and the drain connection to the supply connection and the drain to the sewer.

An additional cooling system for the hot water outlet is recommended. The optimum cooling water flow rate is given in Table 3.

The recommended solution is to use a **SYR5067** or **DBV-2** cooling valve.

WARNING!

Rapid cooling of the boiler may cause damage to it. Suitable pressure reducers must be fitted on the cooling water inlet to the boiler.

Table 3

Summary of thermal and technical parameters for cooling valves for InPell boilers

Boiler output	7	9	11	13	15	18	22	26
Cooling water flow								
– m ³ /h	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11
– l/min	0.67	0.82	1	1.17	1.33	1.50	1.67	1.83
Drop in boiler water temperature [°C]	7	7	7	7	7	7	7	7
Boiler water cooling time [min]	5	5	5	5	5	5	5	5
Cooling rate [°C/min]	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4

7.5.3. Safety requirements

- No shut-off valves or additional fittings **must** be fitted on the pipes supplying and draining cooling water to the cooling unit.
- The thermal protection device must be fitted **directly on the boiler**, on the supply and return connections.
- The drain from the cooling unit and the safety valve must be connected to the drainage system in accordance with the applicable regulations.
- Operating the boiler without a safety valve or with a faulty safety valve is **strictly prohibited**, as it poses a risk to life, health and property. The installation and operating instructions for the safety valve must be followed.
- In closed systems, the requirements of standard **PN-EN 12828** and other applicable regulations must be followed.

The boiler must be installed in accordance with the above requirements and applicable regulations by an authorised installation company, **and the boiler must be commissioned by the manufacturer's trained service team**. Any interference with or tampering with the safety system or control system, or the connection of additional control devices not covered by this manual, poses a risk and will invalidate the warranty.

Repairs and refurbishment of the boiler must only be carried out by an installation and service company trained by the manufacturer. During installation, the guidelines and requirements set out in the technical documentation (DTR) for cooling devices, expansion vessels, thermostatic valves, safety valves and other boiler and system components must be followed. The installation company is responsible for the correct installation of the boiler and must record the installation in the boiler's warranty certificate.

IMPORTANT!

If the above requirements and other safety conditions are not met, the manufacturer accepts no liability for accidents or any consequential damage.

IMPORTANT!

Connection to a water supply from a pressure booster is not recommended.

7.5.4. Installation diagram

Fig. 2 shows the diagram and description of the installation of safety equipment for a closed-loop system,

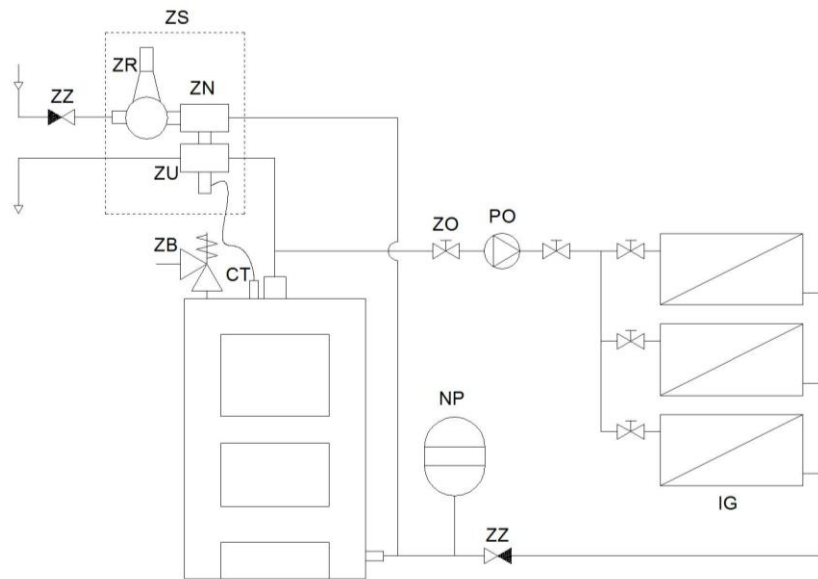
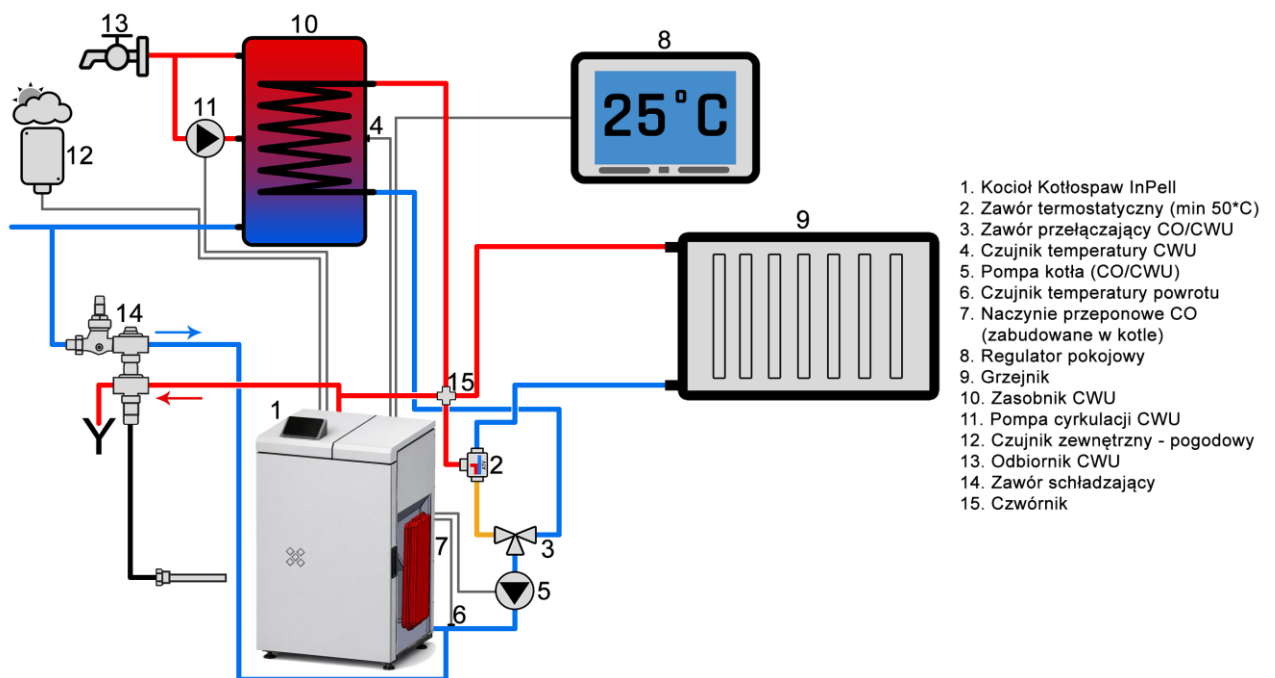


Fig. 2. Installation diagram of a boiler in a closed system protected by a cooling valve.

- | | |
|------------------------------|-------------------------|
| ZS – cooling valve | ZB – safety valve |
| ZR – pressure-reducing valve | IG – heating system |
| ZN – filling valve | NP – diaphragm vessel |
| ZU – drain valve | PO – circulation pump |
| ZO – shut-off valve | CT – temperature sensor |

Boiler in a closed system with a changeover valve



1. Kocioł Kottospaw InPell
2. Zawór termostatyczny (min 50°C)
3. Zawór przełączający CO/CWU
4. Czujnik temperatury CWU
5. Pompa kotła (CO/CWU)
6. Czujnik temperatury powrotu
7. Naczynie przeponowe CO (zabudowane w kotle)
8. Regulator pokojowy
9. Grzejnik
10. Zasobnik CWU
11. Pompa cyrkulacji CWU
12. Czujnik zewnętrzny - pogodowy
13. Odbiornik CWU
14. Zawór schładzający
15. Czwórnik

NOTE!

The hydraulic diagrams shown do not replace central heating system designs and are for illustrative purposes only!

7.5.5. Requirements for operation in a closed system

Before commissioning the boiler in a closed-loop system, the manufacturer's service team or a trained installer must check that all safety devices are functioning correctly. The inspection should include a safe simulation of an emergency situation.

During operation, the user is required to:

- monitor the pressure gauge and thermometer readings,
- regularly check the technical condition of the safety devices (safety valve, thermostatic valve, cooling water flow),
- check the cooling system for leaks — a leak from the coil or heat exchanger is indicated by a drop in pressure and boiler water flowing out through the drain connection.

Note: It is recommended that an inspection be carried out at least once per heating season by the manufacturer's service department or an authorised installation company. Regular inspections ensure that the safety devices function correctly and that the boiler is operated safely.

7.5.6. Guidelines for the selection of diaphragm expansion vessels (closed systems) in accordance with PN-EN 12828:2003**a) Positioning of the diaphragm vessel**

The diaphragm vessel defines the neutral point of the system, where the pressure remains constant regardless of the pumps' operation. It should be positioned so as to ensure adequate pressure on the suction side of the pumps (cavitation protection) and to minimise the temperature load on the diaphragm. The filling point should be situated between the diaphragm vessel and the pump. The recommended connection method is shown in Fig. D.1.

b) Maximum emergency temperature

The size of the vessel should be calculated on the basis of the maximum temperature that may occur in the system during a fault (θ_{max}), e.g. in the event of a safety thermostat failure.

c) Initial design pressure (p_0)

The initial pressure should satisfy the following condition:

$$p_0 \geq p_{ST} + p_D,$$

but must be at least **0.7 bar**. In practice, the value $p_{ST} + 0.3$ bar is often used.

d) Final design pressure (p_C)

p_C must not exceed the pressure set on the safety valve, reduced by the difference between the opening and closing pressures (usually 10%).

e) Taking static head into account

The difference in static pressure between the installation level of the vessel and the safety valve must be taken into account.

f) System capacity (V_{system})

This must be determined. If precise data are not available, an estimate with a safety margin is permitted.

g) Selection of vessel capacity

The minimum vessel capacity should be determined using the method described in D.2. In the event

of incomplete data, Table D.1 may be used (values for a limit temperature of 110°C, without water reserve VWR = 0).

h) Chemical additives

Where corrosion inhibitors are used, their effect on the diaphragm and system components must be checked.

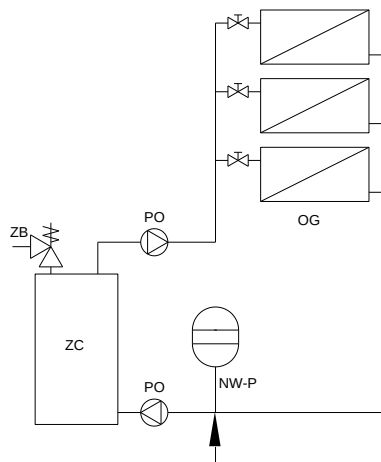


Figure D.1 – Recommended location of the diaphragm vessel in a central heating system
ZC – Heat source, PO – Circulation pump, OG – Heating circuit, ZB – Safety valve, NW-P – Recommended connection point for the diaphragm vessel

To select a diaphragm vessel, the following must be determined in turn:

a) Determination of input parameters

1. **V_{system}** – total water capacity of the system (pipes, radiators, boiler, additional circuits).
2. **θ_{max}** – maximum operating temperature of the system, taking into account any possible exceedance of the design temperature.
3. **e** – relative increase in water volume in accordance with Table D.2.

Note: Additives to the water, such as glycol, alter the coefficient of thermal expansion and may affect the durability and operation of the diaphragm.

4. **V_e** – volume expansion of the heating medium:

$$V_e = e \cdot \frac{V_{system}}{100}$$

5. **VWR** – water reserve ensuring stable system operation:
 - for vessels ≤ 15 l: min. 20% of the vessel's volume,
 - for vessels > 15 l: min. 0.5% of V_{system}, but not less than 3 l.
6. **p_{ST}** – static pressure of the system.

Note: typical initial vessel pressures are 0.5 / 1.0 / 1.5 bar.

b) Calculation of the minimum required vessel capacity

$$V_{exp\ min} = (V_e + V_{WR}) \cdot \frac{p_e + 1}{p_e - p_0}$$

where:

- **pe** – final pressure (safety valve pressure minus margin),
- **p0** – the vessel's pre-pressure.

c) Minimum pre-pressure p_{a_min}

(guaranteeing an adequate water reserve in the system)

$$p_{a_min} \geq \frac{V_{exp_min}(p_0 + 1)}{V_{exp_min} - V_{WR}} - 1$$

d) Maximum initial pressure p_{a_max}

(not exceeding the final pressure p_e)

$$p_{a_max} \leq \frac{p_e + 1}{1 + \frac{V_e(p_e + 1)}{V_{exp_min}(p_0 + 1)}} - 1$$

Additional notes

Table D.1 shows indicative vessel capacities for:

- **$\theta_{max} = 110^{\circ}\text{C}$,**
- **$V_{WR} = 0 \text{ l}$,**

and may be helpful for **simplified selection**; however, in installations with continuous-burning boilers, it is recommended that full calculations be carried out in accordance with the above formulae.

Nastawa zaworu bezpieczeństwa	3,0 bar			2,5 bar			2,0 bar	
Ciśnienie początkowe obciążenia naczynia, p_0	0,5 bar	1,0 bar	1,5 bar	0,5 bar	1,0 bar	1,5 bar	0,5 bar	1,0 bar
Całkowita zawartość wody w instalacji, V_{systemu} litry	Pojemność naczynia wzbiorniczego							
	litry	litry	litry	litry	litry	litry	litry	litry
25	2,1	2,7	3,9	2,3	3,3	5,9	2,8	5
50	4,2	5,4	7,8	4,7	6,7	11,8	5,6	10
75	6,3	8,2	11,7	7	10	17,7	8,4	15
100	8,3	10,9	15,6	9,4	13,4	23,7	11,3	20
125	10,4	13,6	19,5	11,7	16,7	29,6	14,1	25
150	12,5	16,3	23,4	14,1	20,1	35,5	16,9	30
175	14,6	19,1	27,3	16,4	23,4	41,4	19,7	35
200	16,7	21,8	31,2	18,8	26,8	47,4	22,6	40
225	18,7	24,5	35,1	21,1	30,1	53,3	25,4	45
250	20,8	27,2	39	23,5	33,5	59,2	28,2	50
275	22,9	30	42,9	25,8	36,8	65,1	31	55
300	25	32,7	46,8	28,2	40,2	71,1	33,9	60
325	27	35,7	50,7	30,5	43,5	77	36,7	65
350	29,1	38,1	54,6	32,9	46,9	82,9	39,5	70
375	31,2	40,9	58,5	35,2		88,8	42,3	75
400	33,3	43,6	62,4	37,6	53,6	94,8	45,2	80
425	35,4	46,3	66,3	39,9	56,9	100,7	48	85
450	37,5	49	70,2	42,3	60,3	106,6	50,8	90
475	39,6	51,8	74,1	44,6	63,6	112,5	53,6	95
500	41,6	54,5	78	47	67	118,5	56,5	100
Mnożnik dla innych pojemności instalacji	0,0833	0,109	0,158	0,094	0,134	0,237	0,113	0,2

Table D.2 – relative volume expansion, e , in relation to the maximum temperature taking into account the exceeding of the design temperature (filling temperature 10°C – design temperature for water volume 4°C)

Maksymalna temperatura z uwzględnieniem temperatury projektowej	Względny przyrost objętości e
°C	%
30	0,66
40	0,93
50	1,29
60	1,71
70	2,22
80	2,81
90	3,47
100	4,21
110	5,03
120	5,93
130	6,9

NOTE!

The guidelines provided do not restrict the selection of diaphragm vessels in closed systems in accordance with other commonly applied standards and regulations that meet the relevant safety requirements. It is recommended that the selection be carried out by a qualified designer.

8. ELECTRICAL INSTALLATION

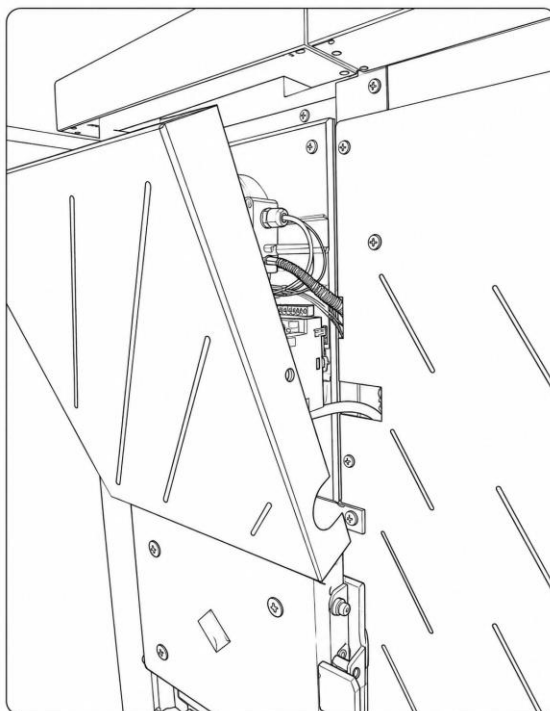
The electrical installation, operating at a mains voltage of 230 V / 50 Hz and intended to power the boiler control unit—which is connected to the feeder, the sensor system and associated equipment—should be carried out in accordance with the diagram provided.

The installation should be fitted with a protective conductor or a protective-neutral conductor with a socket fitted with a protective earth pin. The socket should be situated at a safe distance from the heat source (the boiler).

IMPORTANT!

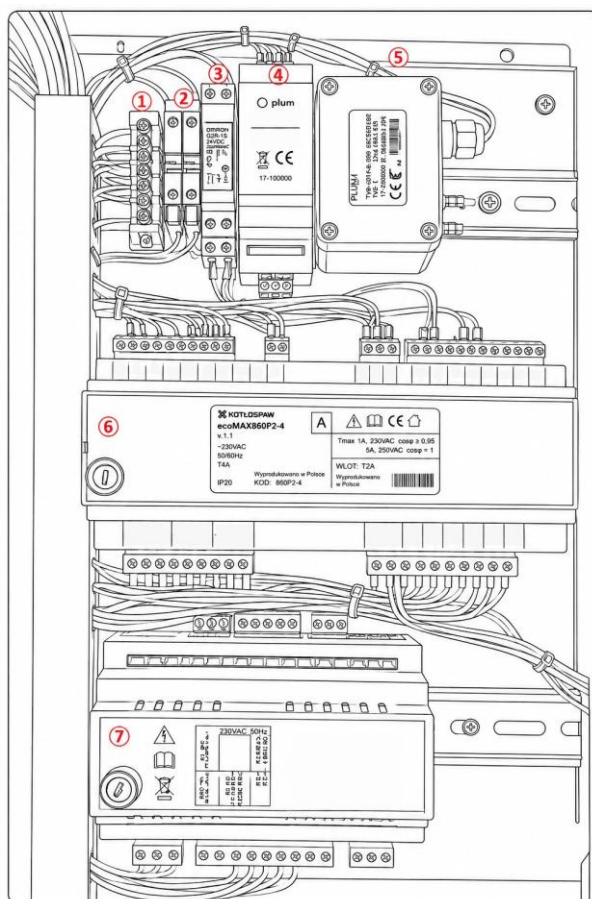
It is recommended that a separate electrical circuit be provided to supply the boiler. The electrical installation must only be connected by a person with the appropriate qualifications.

The controller's actuator modules are located at the front of the boiler and are accessible after opening the external (insulated) door and the controller module cover.



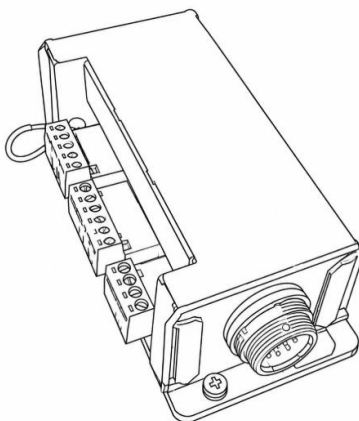
Location of the control modules

Depending on the boiler's equipment configuration, the layout and number of control modules may vary. An example of how the modules are fitted into the dedicated space within the boiler is shown below.



1. Busbar with PE connections
2. 1A fuse holders – independent circuit protection for the fuel feeder and exhaust fan,
3. Base with 12/230 V relay
4. InGlow system module – ecoSwitch,
5. Boiler pressure transducer – ecoPress module
6. Module A
7. Module B

The InPell burner circuit board is responsible for the correct operation of the unit and the stable power supply to its components. It has been designed to ensure safe and reliable burner operation. The complete module is fitted with a 12-pin WEIPU connector.



Module A	Wire colour	Number on the burner board on the Module A side
33	Grey	1
35	Pink	2
34	White	3
42	Purple	4
41	Black	5
None	Green	6
None	Red and blue	7
None	Grey and pink	8
10	Brown	9
9	Red	10
8	Blue	11
PE strip	Yellow	PE

9. FILLING WITH WATER

Before lighting the fire in the boiler, the heating system, including the boiler. Filling must be carried out in accordance with the installer's instructions. To check whether the system has been filled correctly, open the valve on the indicator pipe for a few seconds – a continuous flow of water from the indicator pipe indicates that the water is filling the expansion vessel located at the highest point of the system, and not just the indicator pipe. Water should be topped up in the boiler and the system whilst the boiler is not in operation. If the water temperature in the boiler is high, allow it to cool down and top up very slowly or use pre-heated water. It is recommended to use softened water with a pH of 7. After filling, check the boiler and system for leaks.

The drain from the overflow and signal pipes should be located in the boiler room at a safe distance of approx. 0.3–0.5 m above the floor.

10. BOILER RETURN PROTECTION

The boiler should be operated with a flow-return temperature difference within the range of 20–15°C and a return temperature **of not less than 50°C**. Prolonged operation of the boiler at low temperatures may cause corrosion, thereby shortening the boiler's service life (by as much as several years). To prevent this, the manufacturer recommends the following solutions:

- the use of a boiler circulation pump directly between the flow and return lines, which will mix the return circuit and increase the temperature depending on the setting on the controller,
- the use of mixing systems fitted with four-way mixing valves with a boiler pump,
- the use of constant-temperature valves in the system on the boiler return with a minimum opening temperature of 50°C.

NOTE!

The technical solutions described above help to reduce internal corrosion, thereby extending the boiler's service life and ensuring more economical operation.

NOTE!

The use of temperature protection is a prerequisite for the boiler supplier to honour the terms of the extended warranty.

11. DIMENSIONS

The basic dimensions of the InPell boiler range are shown in Table 5.

Fig. 5 – boiler dimensions

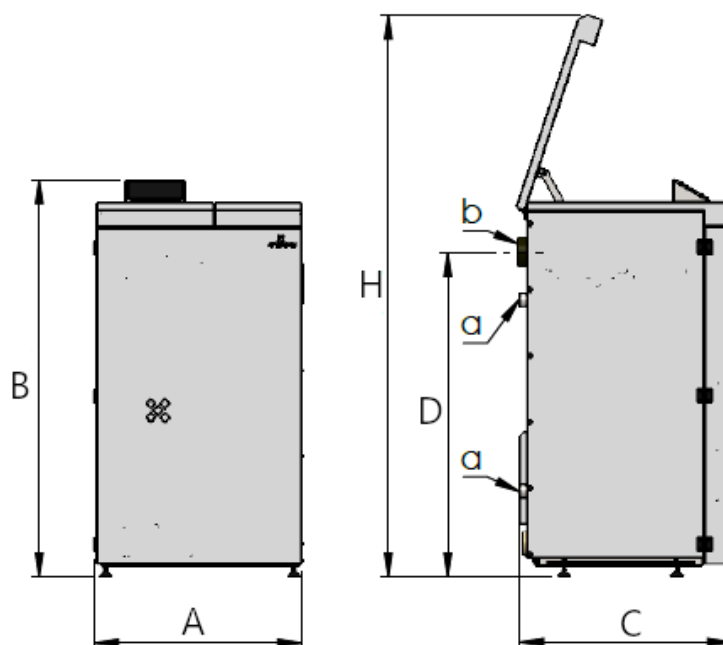


Table 5

InPell	unit	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW
A	mm	575				631			
B	mm	1100				1383			
C	mm	580				636			
D	mm	890				1165			
H	mm	1550				1830			
and	mm	DN 25 (GW 1")				DN 25 (GW 1")			
b	Φ	Φ80				Φ100			

12. BOILER COMMISSIONING

Before the first and each subsequent start-up of the InPell boiler, check that it is correctly connected to the central heating system, the flue, the electrical system and the ventilation system. Particular attention should be paid to ensuring the system is correctly protected – in an open system in accordance with PN-91/B-02413 or in a closed system in accordance with PN-EN 12828. You must also ensure that the heating system is correctly filled with water and that the water in the system and the boiler has not frozen.

The user or their representative is responsible for inspecting and carrying out the technical acceptance of the boiler after installation. These activities should be carried out in consultation with the designer, installer or another specialist in heating systems and confirmed by an acceptance report.

The boiler must be commissioned for the first time by an authorised Kotłospaw service centre.

To arrange a service visit, please complete the form available at:

<https://kotlospaw.pl/serwis/zgloszenie-serwisowe/>

12.1 Firing up the boiler

Ignition initiates the combustion process, followed by automatic boiler operation.

To light the boiler, carry out the following essential and standard steps:

- switch on the power supply
- fill the fuel hopper with the appropriate fuel and close the lid,
- fill the fuel feeder by switching it to 'manual control / output test',
- start the controller in accordance with its operating instructions.

From this point onwards, the boiler will operate automatically, in accordance with the settings the user has configured on the controller, following the controller's user manual. Ash from the burnt fuel gradually falls into the ash pan, causing the burner chamber to self-clean.

12.2 Refuelling

To maintain a continuous combustion process, the fuel tank must be refilled periodically. The frequency of refilling depends on the intensity of the combustion process and should be determined on a case-by-case basis as and when required, based on experience. Refuelling must be carried out with the controller (boiler) switched off. The ash drawer should also be emptied approximately every 5 fuel hopper refill cycles.

WARNING!

Operating the boiler when the fuel level in the hopper falls below the minimum level of 1/4 is prohibited!

Any accumulation of dust may pose an explosion hazard. Provided the above recommendations are followed, the risk of explosion is virtually non-existent.

13. POWER CONTROL

To regulate output, the InPell boiler is fitted with a microprocessor-based temperature controller, which enables operation at the appropriate output level as required. The controller features a boiler output modulation mechanism – allowing the output to be gradually reduced as the boiler temperature approaches the set point.

14. ESSENTIAL CONDITIONS FOR SAFE OPERATION

The boiler does not require constant monitoring involving direct observation of the combustion process; however, supervision by trained personnel is required, which involves checking that the control system is functioning correctly and that the boiler is operating in accordance with the conditions and requirements set out in the Technical Operating Manual.

During the boiler's operation, the user should adhere to the following guidelines:

- It is prohibited to open the furnace doors or use them for continuous monitoring of the combustion process, or for cleaning the burner and furnace whilst the boiler is in operation. The combustion process is automatically monitored and controlled, and all operating states and any faults are signalled and displayed on the controller's screen.
- Thorough cleaning of the boiler and burner is essential for correct operation, maintaining good draught and efficiency, economical fuel consumption and the service life of the boiler. Cleaning is not difficult if carried out regularly. Failure to clean the boiler leads to the build-up of hard-to-remove deposits and soot in the burner chamber, disrupting the stable combustion process, significantly increasing fuel consumption and reducing the boiler's efficiency.
- Use of temperature protection, as operating the boiler at a low thermal load causes flue gas condensation and moisture build-up in the flue, which in turn leads to its deterioration, the formation of condensate (a slimy liquid) and severe corrosion of the boiler.

15. BOILER OPERATIONAL FAULTS – THE MOST COMMON PROBLEMS AND THEIR REMEDIES.

15.1 The main causes of malfunctions and operational faults in the boiler include:

- poor fuel quality,
- an unsuitable type of chimney and insufficient draught,
- contamination of the boiler, particularly the convection channels,
- lack of ventilation in the boiler room,
- lack of air supply to the retort burner,
- damage to the fuel feeder, controller or fan,

Malfunctions	Cause of malfunction	Remedial measures
<i>The boiler does not reach rated output</i>	• incorrect fuel	• use fuel with specifications the burner's technical specifications
	• incorrect boiler adjustment	• carry out a feeder test; check the controller settings
	• insufficient chimney draught	• check that the flue pipe and chimney are clear
	• dirty boiler	• clean the boiler and heat exchanger (flue gas ducts)
	• Insufficient air supply in the boiler room or a lack thereof	• check or install a ventilation system in the boiler room
	• Low water level in the system, air trapped in the system	• top up the water (via the expansion tank, bleed the system).
	• faulty or incorrectly positioned water temperature sensor in the measuring sleeve	• check the sensor and its installation
<i>Fuel is not burning completely</i>	• Incorrect fuel delivery time settings and pauses	• carry out a feeder test; check and verify the controller settings
	• Incorrect amount of combustion air	• Adjust the fan airflow using the setting on the controller
	• fuel does not comply with the requirements	• use the correct fuel
<i>The fuel feeder is not supplying fuel</i>	• no fuel in the tank	• top up the fuel
	• The feeder is blocked	• Locate the object blocking the feeder and remove it
	• STB safety mechanism has been triggered	• check the cause of the trip and reset the STB circuit breaker
	• faulty gearbox motor	• contact the manufacturer's service department
<i>Uncontrolled boiler shutdown</i>	• incorrect controller parameter settings	• check the controller settings
	• controller fault	• contact the manufacturer's service

		department
<i>Exhaust fumes escaping from the boiler or fuel tank</i>	• Open boiler door, inspection hatches or fuel tank cover	• check that the door or lid is closed
	• damaged seal on the boiler door	• check that the door is properly closed and that the door is airtight
	• missing or blocked exhaust ventilation in the boiler room	• check the effectiveness of the extract ventilation and, if absent, install
	• failure to carry out inspections and cleaning of the boiler and burner	• ensure the boiler is in good working order – cleaning, inspections, maintenance
	• Incorrect positioning of the boiler door or tank cover	• adjust using hinges, handles or clamps – ensure the door or cover is correctly positioned
	• Insufficient draught chimney draught	• check the flue, call a chimney sweep, clean the chimney
	• dirty or blocked burner air chamber	• Clean and clear the air chamber
<i>Water leaking from the boiler</i>	• 'boiler sweating' has occurred	• set the boiler operating temperature of the boiler to above 50°C at the return
	• leak in the water-carrying part of the boiler casing	• contact the manufacturer's service department
<i>Damage to the flue</i>	• Chimney incorrectly selected due to low flue gas temperature	• It is recommended that you contact a flue system specialist to modernise the chimney and fit a chimney liner,

PLEASE NOTE!

In the event of other or unusual faults during boiler operation, please contact the boiler manufacturer's service department.

16. BOILER CLEANING AND MAINTENANCE

The boiler requires regular cleaning and maintenance, which are crucial for its proper operation, combustion efficiency and maintaining adequate chimney draught. It is particularly important to systematically remove deposits from the flue channels and the flue pipe.

The frequency of cleaning depends on the intensity of use and the quality of the fuel – it should usually be carried out every few days, depending on how dirty the heat exchanger surface is.

Safety precautions before cleaning

Before carrying out any maintenance work, you must:

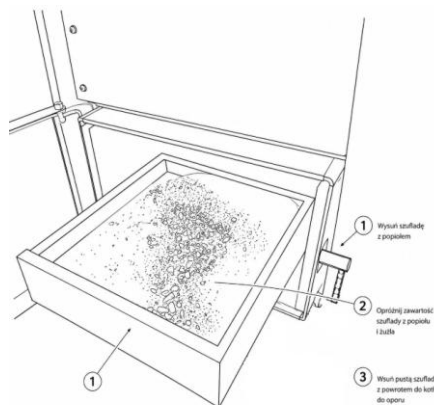
1. Switch off the boiler.
2. Unplug the boiler from the mains socket.
3. Wait until the boiler has cooled down and the room has been ventilated.
4. Check the CO concentration using a specialist meter and ensure that the level is safe for personnel.

All maintenance, adjustment and repair work must be carried out whilst the boiler is cold, by authorised personnel or in accordance with the manufacturer's instructions.

Routine maintenance and operation

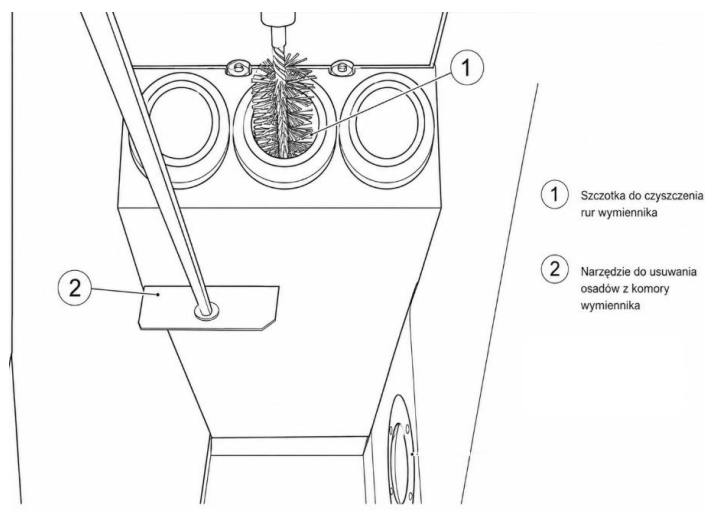
1. Emptying the boiler ash pan – once a month or more frequently:

- Open the front ash pan door.
- Pull out the ash drawer.
- Allow the ash to cool and remove it from the drawer.



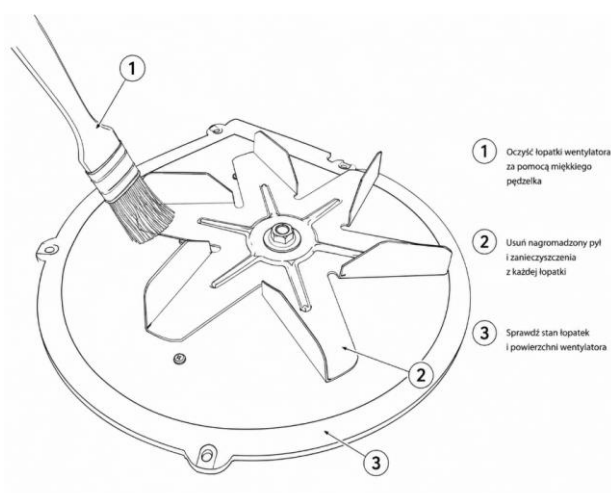
2. Cleaning the combustion chamber and convection ducts – once every 6 months or more frequently:

- Remove the upper insulation from the boiler,
- Unscrew the access hatches for the combustion chamber and convection channels,
- Unplug the extractor fan and remove the access hatches,
- Remove the flue gas swirlers,
- Clean the vertical flue ducts and fire tubes using a scraper and a brush.
- The thickness of the accumulated soot **should not exceed 2–3 mm**.



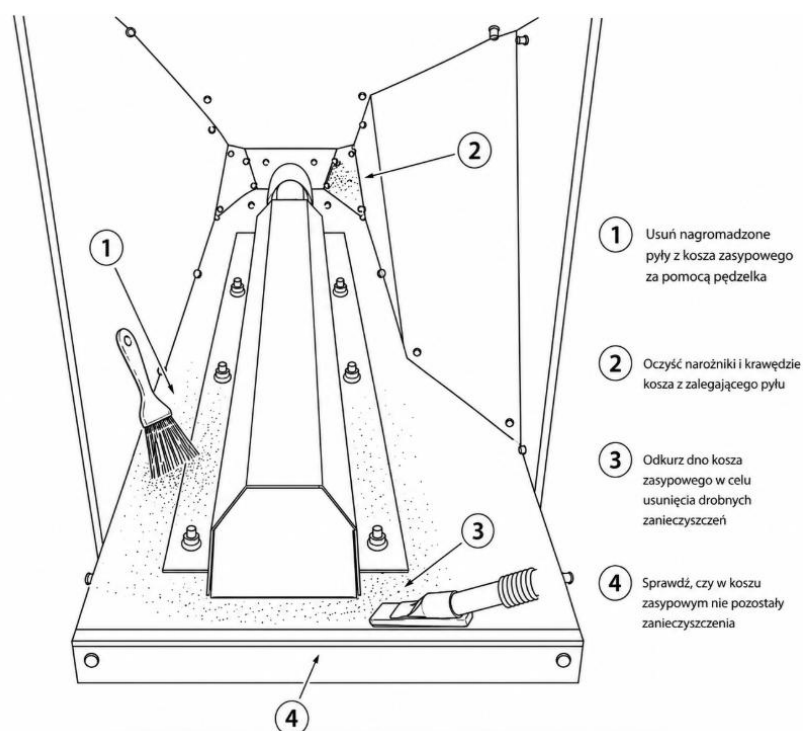
3. Cleaning the extractor fan impeller – once every 12 months or more frequently:

- Remove the upper insulation from the boiler,
- Unscrew the bolts from the motor impeller,
- Carefully remove the motor and vacuum its blades,
- Clean the fan housing of dust and soot,



4. Cleaning the fuel feeder once every 12 months or more frequently:

- Empty the fuel hopper,
- Vacuum the entire contents of the fuel hopper, paying particular attention to the bottom of the hopper,
- In extreme cases, it may be necessary to dismantle the fuel feeder and vacuum out any accumulated dust,



5. **Clean the flue connection** once every 12 months or more frequently:

- Clean the flue pipe via the cleaning port on the chimney connector.
- In the case of chimneys fitted with a bottom access hatch – the deposits can be shaken into the chimney, and then removed via this access point.
- In installations with extended flue pipes or non-standard manifolds, **an additional cleaning access point** must be provided to ensure access for cleaning.

NOTE: The above procedures form part of the work carried out by a KOTŁOSPAW factory service engineer during a periodic inspection. To book an appointment, please submit a request via the website:

<https://kotlospaw.pl/serwis/zgloszenie-serwisowe/>

Tasks to be carried out after the end of the heating season:

Do not **drain the water from the boiler** at the end of the season. It is recommended that you:

- thoroughly clean the firebox and flue gas ducts,
- carry out a technical inspection of the boiler and burner,
- replace any damaged parts (doors, handles, seals, covers, etc.) if necessary.

WARNING!

When cleaning, use portable lamps with a voltage not exceeding 24V or rechargeable torches.

17. FIRE SAFETY REQUIREMENTS.

- the boiler is made of non-combustible materials,
- Do not store fuel or flammable materials in the immediate vicinity of the boiler – maintain a safe distance of at least 1.5 m,
- if necessary, install barriers or shields made of non-combustible materials,
- it is recommended to have a fire extinguisher, a carbon monoxide detector and a smoke detector in the boiler room,
- as required, at least every 12 months, have a chimney sweep carry out and certify to clean the flue to remove soot and eliminate the risk of it catching fire.

WARNING!

It is strictly forbidden to operate the boiler with the firebox door open or without the original ash pan.

18. EMERGENCY SHUTDOWN OF THE BOILER

The boiler operates fully automatically, with the option to switch it off and extinguish the flame in emergency situations as described in the burner and controller operating manuals.

In the event of other hazards preventing further operation of the boiler – such as:

- an uncontrolled rise in water temperature or pressure,
- a sudden, severe water leak from the boiler or the system,
- damage to the control system, fittings or equipment of the boiler or system,

you must immediately carry out the following steps:

Switch off the boiler's power supply (unplug the plug from the socket), which will stop the fuel feeder. Then remove the embers from the firebox into the ash pan or a metal container.

It is also permissible to cover the embers with dry sand to help extinguish the fire more quickly.

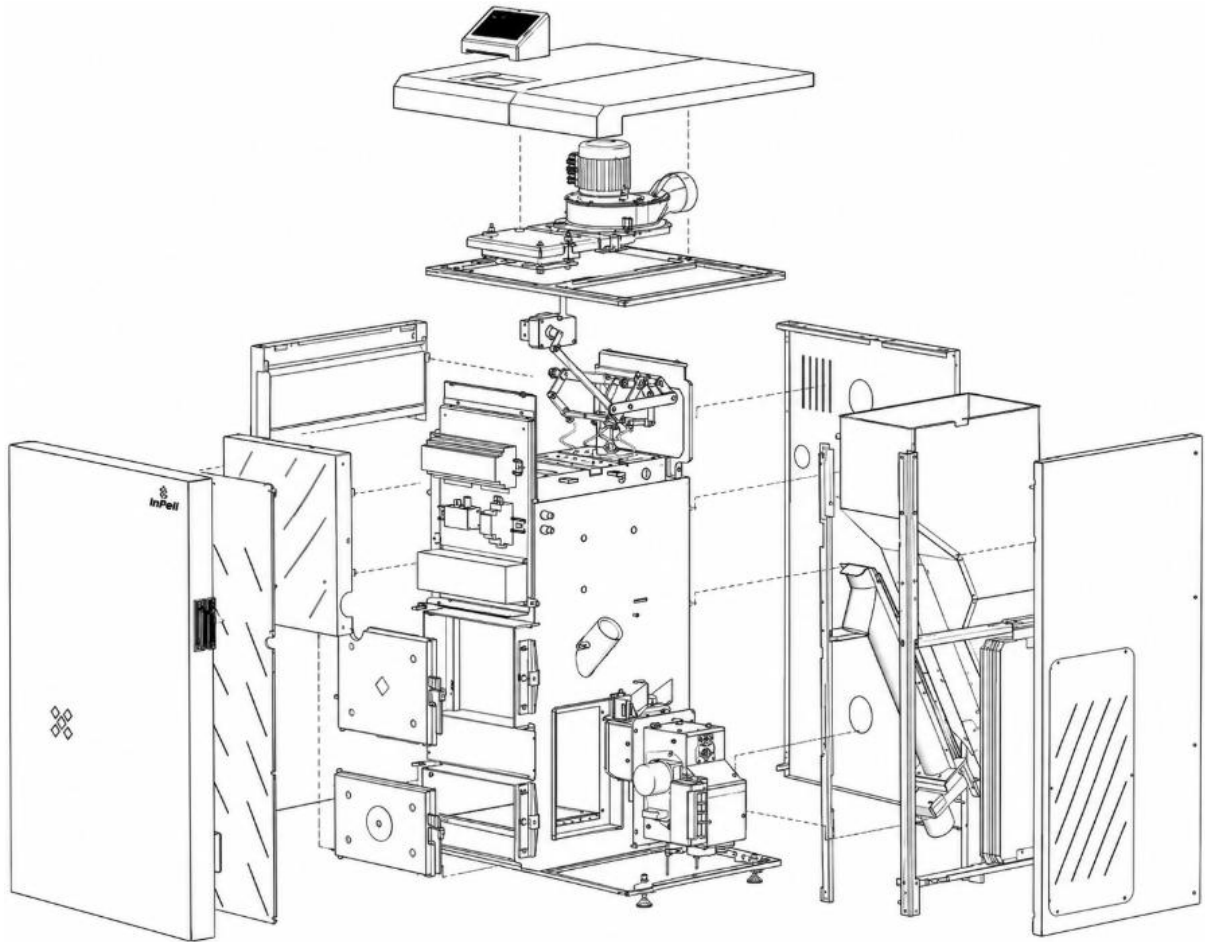
Take particular care to avoid burns or carbon monoxide poisoning — remain in the boiler room only for short periods, and, if possible, open the door or ventilation openings to ventilate the room.

Determine the cause of the fault; once it has been rectified and you have ensured that the boiler and system are in good working order, proceed with cleaning and restarting the boiler room.

CAUTION!

In specific situations – where smoke in the room prevents the safe removal of embers or where there is another immediate fire hazard – the Fire Brigade must be called immediately.

19. EXPLODED VIEW OF THE UNIT



20. SHUTTING DOWN THE BOILER

At the end of the heating season or in other cases where the boiler is to be taken out of service from service, the boiler must be thoroughly cleaned, paying particular attention to the combustion chamber, ash pan, air chamber and convection heat exchanger.

During the period of inactivity, do not drain the water from the central heating system, unless required for repair or installation work. To extend the boiler's service life, it is recommended to leave the boiler in the open position during the period of inactivity, allowing air to flow freely through its interior and, consequently, to dry it out.

Boiler maintenance should be carried out after the heating season.

21. FINAL REMARKS

A boiler used in accordance with the Technical Operating Instructions and properly protected poses no risk. An incorrect safety system may cause a malfunction and pose a risk to the user; therefore, you should ask the installer to confirm that the boiler has been correctly protected.

Due to technical progress, the manufacturer may introduce design changes confirmed by testing – the boilers supplied may differ slightly from the illustrations in the manual or the quotation.

A smoke and carbon monoxide detector must be used in the boiler room, and the user should carefully familiarise themselves with the technical documentation for all equipment components.

In the event of the boiler malfunctioning, switch off the appliance immediately and report the fault to the service department.

It is forbidden to make any unauthorised alterations to the boiler or modifications to the installation (heating, ventilation, flue, electrical, etc.). Air and flue vents must remain unobstructed.

Any modifications may only be carried out by qualified installers, and for the safety and longevity of the appliance, an annual inspection must be carried out by the manufacturer's service team.

22. ENVIRONMENTAL PROTECTION

The boiler is manufactured from environmentally neutral materials. Once the boiler has reached the end of its service life and the boiler has reached the end of its service life, it must be dismantled and scrapped. The dismantling of individual boiler components, given the simplicity of its design, does not require any special instructions. Worn metal parts should be scrapped. The remaining parts should be stored in accordance with the relevant requirements and then handed over to waste disposal centres.

23. RESIDUAL RISKS

Although the manufacturer is responsible for the boiler's design and labelling to minimise risks during operation, handling and maintenance, it is not possible to completely eliminate all risks. Residual risk arises primarily from the user's improper behaviour or failure to follow the instructions. Therefore, in all situations, basic safety rules must be followed and act sensibly.

When assessing residual risk, the boiler is treated as a device designed and manufactured in accordance with the requirements of EU directives, standards, technical specifications, the current state of the art and recognised engineering practice.

To raise awareness of the hazards, the boiler has been marked with appropriate symbols and warning signs, and the Technical Operating Manual (DTR) contains relevant notes regarding hazards and prohibited methods of use. The user is obliged to comply with these strictly.

23.1. Causes of residual risk and methods of its elimination.

Residual risk arises when the user **fails to follow the recommendations and instructions** in the boiler's **technical documentation** and for its equipment. The greatest hazards result from carrying out prohibited activities, such as:

1. Incorrect use

- using the boiler for purposes other than those for which it is intended,



- failure to familiarise oneself with the technical documentation for the boiler, burner, feeder, controller and cooling system components.

2. Failure to meet safety requirements

- failure to comply with the following standards:
 1. PN-91/B-02413 – open system
 2. PN-EN 12828 – closed system
- failure by the installer to confirm that the safety measures are correct,
- for boilers >70 kW in a closed system – failure to notify the Technical Inspection Authority (UDT).

3. Unauthorised operation

- operation by minors, untrained persons or those unfamiliar with the technical documentation,
- operation of boilers >50 kW by persons without valid qualifications,
- operation by persons under the influence of alcohol or intoxicating substances.

4. Prohibited operational activities

- leaving the boiler unattended,
- operating the boiler with doors and covers open,
- tampering with the boiler's structure, systems or safety devices,
- carrying out modifications and repairs yourself (electrical work must only be carried out by a qualified electrician).

5. Safety negligence

- no carbon monoxide or smoke detector in the boiler room,
- failure to monitor the combustion process (recommended at least several times a day),
- failure to regularly check the cooling system's safety mechanisms,
- lack of caution during operation (do not put your hands into hot or hazardous areas).

6. Fuel-related errors

- failure to protect pellets from moisture and dust,
- storing pellets in bulk in the boiler room,
- failure to exercise caution when filling the fuel tank.

24. CONDITIONS FOR THE SAFE OPERATION OF BOILERS

The fundamental prerequisite for the safe operation of a boiler is **a correctly installed system**, in accordance applicable regulations and standards. In addition, the following rules must be observed:

- **Do not operate the boiler if the water level** in the system is **too low**.
- **Do not put your hands into hazardous areas** (burner, fan, firebox, ash pan).
- Before starting the boiler, ensure that all **doors and covers are securely closed**.
- Wear **gloves, safety goggles and a helmet** when operating the boiler; do not open the doors whilst the boiler is in operation.
- Keep **the boiler room tidy** and free of any items not related to boiler operation.
- Use **lighting rated up to 24 V** or rechargeable torches for cleaning and maintenance.
- Ensure **the boiler and system are in good working order**, and rectify any faults immediately.



- In winter, **do not allow the central heating system to freeze**; fill and start up the system carefully, preferably using hot water.
- If you suspect that the system or safety circuit has frozen, **check that it is unblocked**; if it is not, **do not light the boiler**.
- Do not use **petrol, paraffin or other flammable substances** to light the boiler.
- In the event of a fire hazard (e.g. soot ignition in the flue), **call the fire brigade immediately**.
- The electrical installation must only be serviced by a **qualified electrician**.
- Exercise caution and be aware of **the residual risks** associated with the operation of the appliance.

WARNING!!

Do not pour water into the firebox!

Hazards arising from the incorrect use of the boiler

<i>Cause of the hazard</i>	<i>Expected possible consequence</i>	<i>Prevention measures</i>
Boiler safety measures not in accordance with requirements	Rupture – destruction of the boiler, explosion	Boiler protection in an open system in accordance with PN-91/B 02413 and the Technical Operating Instructions
Water freezing in the boiler together the central heating system	Ruptures – boiler damage, explosion	Insulate the central heating system and the expansion tank properly
Storing flammable and explosive materials near the boiler, e.g. solvents, paints, etc.	Fire, explosion	Remove all flammable substances and materials from the hazard area
Leaving doors, covers, hatches or inspection openings	Uncontrolled boiler operation – inability to control, boiling water, smoke	Check and close all boiler and tank doors and covers
Sudden and unjustified opening of doors and covers whilst the boiler is in operation	Escape of flue gases, hot embers or flames	If necessary, gently ajar the door, stand to one side and do not lean over the open door. Carry out these actions quickly, whilst wearing gloves, safety goggles and a head covering
Leak from the boiler – lack of water in the boiler and the central heating system	Burn-out – damage to the boiler, fire	Check the water level in the central heating system by checking the overflow from the expansion tank of the in an open system
Lack of ventilation in the boiler room	Smoke in the boiler room if flue gases are escaping from the boiler	Install supply ventilation in the boiler room – follow the boiler's technical documentation
Lack of boiler operation and maintenance	Flue gases escaping from the boiler, accelerated wear, corrosion of the boiler	Carry out maintenance and clean the boiler in accordance with the technical manual
Topping up the central heating system with cold water whilst the boiler is running	Risk of boiler damage – cracking, water leakage from the boiler	Top up the central heating system of a cooled-down boiler whilst downtime, preferably with hot water
No chimney suitable for low flue gas temperatures	Damage to the flue and the building's external walls – high repair costs.	Use of a suitable chimney – it is recommended to contact a specialist firm

A possible, yet tragic, consequence of the above-mentioned risks arising from the improper use of the boiler may be burns, poisoning, disability and, in extreme cases, even death.

25. ECO-PROJECT INFORMATION SHEET

Model identifier	InPell 7						
Fuel feed method	automatic						
Condensing boiler	No						
Solid-fuel cogeneration boiler: no				Multifunctional boiler: no			
Fuel	Recommended fuel	Other suitable fuels:	η_s [%]:	Emissions from seasonal space heating			
				PM	OGC	CO	NO _x
				[x] mg/m ³			
Moisture content $\leq 25\%$	no	no					
Wood chips, moisture content 15–35%	no	no					
Wood chips, moisture content $> 35\%$	no	no					
Compressed wood in the form of pellets or briquettes	yes	no	80	18	14	292	109
Sawdust, moisture content $\leq 50\%$	No	no					
Other woody biomass	no	no					
Non-wood biomass	no	no					
Hard coal	no	no					
Lignite (including briquettes)	no	no					
Coke	No	no					
Anthracite	no	no					
Mixed fossil fuel briquettes	no	no					
Other fossil fuels	no	no					
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no					
Other fossil fuel blends	no	no					
Performance when operated exclusively on the recommended fuel							
Parameter	Symbol	Value	Unit	Parameter	Symbol	Value	Unit
Useful heat generated				Utilisation efficiency			
at rated heat output	P_n	7.01	kW	at rated thermal output	η_n	84.34	%
at [30%/50%] of the rated thermal output, respectively	P_p	1.85	kW	at [30%/50%] of the rated heat output, respectively	η_p	83.10	%
for solid-fuel cogeneration boilers: electrical efficiency				Electricity consumption for own use			
				at rated thermal output	e_{lmax}	0.0270	kW
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	e_{lmin}	0.0160	kW
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW
				in standby mode	PSB	0.0080	kW
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl						

Model identifier		InPell 9						
Fuel feeding method		automatic						
Condensing boiler		No						
Solid-fuel cogeneration boiler: no				Multifunction boiler: no				
Fuel	Recommen- ded fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m³				
Moisture content ≤ 25%	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content > 35%	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	80	18	13.1	261	112	
Sawdust, moisture content ≤ 50%	no	no						
Other wood biomass	no	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blend	no	no						
Performance when operated exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	P_n	9	kW		at rated thermal output	η_n	84.3	%
at [30%/50%] of the rated heat output	P_p	2.7	kW		at [30%/50%] of the rated heat output, respectively	η_p	83.3	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
				at rated thermal output	elmax	0.0300	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	elmin	0.0173	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW	
				in standby mode	PSB	0.0080	kW	
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

Model identifier		InPell 11						
Fuel feeding method		automatic						
Condensing boiler		No						
Solid-fuel cogeneration boiler: no				Multifunctional boiler: no				
Fuel	Recommen- ded fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m³				
Moisture content $\leq 25\%$	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content $> 35\%$	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	81	18	12.6	229	115	
Sawdust, moisture content $\leq 50\%$	no	no						
Other woody biomass	not	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blends	no	no						
Performance when operated exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	<i>Mon</i>	11	kW		at rated thermal output	η_n	84.4	%
at [30%/50%] of the rated heat output	<i>Pp</i>	3.3	kW		at [30%/50%] of the rated heat output, respectively	η_p	83.5	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
				at rated thermal output	elmax	0.0330	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	elmin	0.0187	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW	
				in standby mode	<i>PSB</i>	0.0080	kW	
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

Model identifier		InPell 13							
Fuel feeding method		automatic							
Condensing boiler		No							
Solid-fuel cogeneration boiler: no				Multifunction boiler: no					
Fuel	Recommen- ded fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating					
				PM	OGC	CO	NOx		
				[x] mg/m³					
Moisture content ≤ 25%	no	no							
Wood chips, moisture content 15–35%	no	no							
Wood chips, moisture content > 35%	no	no							
Compressed wood in the form of pellets or briquettes	yes	no	81	18	12	198	118		
Sawdust, moisture content ≤ 50%	No	no							
Other woody biomass	no	no							
Non-wood biomass	no	no							
Hard coal	no	no							
Lignite (including briquettes)	no	no							
Coke	No	no							
Anthracite	no	no							
Mixed fossil fuel briquettes	no	no							
Other fossil fuels	no	no							
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no							
Other fossil fuel blends	no	no							
Performance when operated exclusively on the recommended fuel									
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit	
Useful heat generated					Utilisation efficiency				
at rated heat output	P_n	12.35	kW		at rated thermal output		η_n	84.36	%
at [30%/50%] of the rated heat output	P_p	3.81	kW		at [30%/50%] of the rated heat output, respectively		η_p	83.77	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use				
				at rated thermal output		elmax	0.0360	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output		elmin	0.0200	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]		kW	
				in standby mode		PSB	0.0080	kW	
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl								

Model identifier	InPell 15							
Fuel feeding method	automatic							
Condensing boiler	No							
Solid-fuel cogeneration boiler: no				Multifunctional boiler: no				
Fuel	Recommened fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m³				
Moisture content $\leq 25\%$	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content $> 35\%$	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	81	18	12.6	204	116	
Sawdust, moisture content $\leq 50\%$	no	no						
Other woody biomass	no	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blends	no	no						
Performance when operated exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	P_n	15.0	kW		at rated thermal output	η_n	84.3	%
at [30%/50%] of the rated heat output	P_p	4.5	kW		at [30%/50%] of the rated thermal output	η_p	83.7	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
				at rated thermal output	elmax	0.0400	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	elmin	0.0200	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW	
				in standby mode	PSB	0.0080	kW	
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

Model identifier	InPell 18							
Fuel feeding method	automatic							
Condensing boiler	No							
Solid-fuel cogeneration boiler: no				Multifunction boiler: no				
Fuel	Recommened fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m ³				
Moisture content ≤ 25%	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content > 35%	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	81	18	13.4	213	114	
Sawdust, moisture content ≤ 50%	no	no						
Other woody biomass	no	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blends	no	no						
Performance when operating exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	P_n	18.0	kW		at rated thermal output	η_n	84.2	%
at [30%/50%] of the rated heat output	P_p	5.4	kW		at [30%/50%] of the rated heat output, respectively	η_p	83.6	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
				at rated thermal output	elmax	0.0470	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	elmin	0.0200	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW	
				in standby mode	PSB	0.0070	kW	
Contact details	KOTLOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

Model identifier		InPell 22						
Fuel feeding method		automatic						
Condensing boiler		No						
Solid-fuel cogeneration boiler: no				Multifunctional boiler: no				
Fuel	Recommen- ded fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m³				
Moisture content ≤ 25%	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content > 35%	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	80	18	14.5	226	111	
Sawdust, moisture content ≤ 50%	no	no						
Other woody biomass	no	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blends	no	no						
Performance when operated exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	P_n	22.0	kW		at rated thermal output	η_n	84.1	%
at [30%/50%] of the rated heat output	P_p	6.6	kW		at [30%/50%] of the rated heat output, respectively	η_p	83.4	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
				at rated thermal output	elmax	0.0560	kW	
at rated heat output	$\eta_{el,n}$	-	%	at [30%/50%] of the rated heat output	elmin	0.0210	kW	
				secondary emission control devices, where applicable		[x,xxx/N.A.]	kW	
				in standby mode	PSB	0.0060	kW	
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

Model identifier	InPell 26							
Fuel feeding method	automatic							
Condensing boiler	No							
Solid-fuel cogeneration boiler: no				Multifunction boiler: no				
Fuel	Recommened fuel	Other suitable fuels:	η_s [x %]:	Emissions from seasonal space heating				
				PM	OGC	CO	NOx	
				[x] mg/m ³				
Moisture content ≤ 25%	no	no						
Wood chips, moisture content 15–35%	no	no						
Wood chips, moisture content > 35%	no	no						
Compressed wood in the form of pellets or briquettes	yes	no	80	18	16	238	108	
Sawdust, moisture content ≤ 50%	No	no						
Other woody biomass	no	no						
Non-wood biomass	no	no						
Hard coal	no	no						
Lignite (including briquettes)	no	no						
Coke	No	no						
Anthracite	no	no						
Mixed fossil fuel briquettes	no	no						
Other fossil fuels	no	no						
Briquettes made from a mixture (30–70%) of biomass and fossil fuel	no	no						
Other fossil fuel blends	no	no						
Performance when operated exclusively on the recommended fuel								
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
Useful heat generated					Utilisation efficiency			
at rated heat output	P_n	25.70	kW		at rated thermal output	η_n	84.04	%
at [30%/50%] of the rated heat output	P_p	7.26	kW		at [30%/50%] of the rated heat output, respectively	η_p	83.20	%
for solid-fuel cogeneration boilers: electrical efficiency					Electricity consumption for own use			
					at rated thermal output	e_{lmax}	0.0650	kW
at rated heat output	$\eta_{el,n}$	-	%		at [30%/50%] of the rated heat output	e_{lmin}	0.0210	kW
					secondary emission control devices, where applicable		[x,xxx/N.A.]	kW
					in standby mode	PSB	0.0047	kW
Contact details	KOTŁOSPAW Sp. z o.o. 38 Szenica Street, 63-300 Pleszew Tel. +48 62 597 14 78 Email: kotlospaw@kotlospaw.pl							

26. PRODUCT DATA SHEET

KARTA PRODUKTU ZGODNIE Z ROZPORZĄDZENIEM UE 2015/1187 UZUPEŁNIAJĄCYM DYREKTYWĘ PARLAMENTU EUROPEJSKIEGO I RADY 2009/125/WE

 Producent: KOTŁOSPAW Sp. z o.o., ul. <u>Szenica</u> 38, 63-300 Pleszew								
Parametry urządzenia	Identyfikator modelu							
	<u>InPell</u>							
	7	9	11	13	15	18	22	26
Klasa efektywności energetycznej	A+	A+	A+	A+	A+	A+	A+	A+
Znamionowa moc cieplna	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW
Współczynnik efektywności energetycznej	115	116	116	117	117	117	117	117
Sezonowa efektywność energetyczna ogrzewania pomieszczeń	80%	80%	81%	81%	81%	81%	80%	80%
Należy przestrzegać wszystkich wymogów odnośnie montażu, instalacji, i konserwacji zawartych w instrukcji obsługi dostarczonej z kotłem								

PN-EN 303-5+A1:2023-05

SPACE FOR NOTES

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27. WARRANTY TERMS

1. The warranty constitutes the boiler manufacturer's undertaking to rectify, free of charge, any physical defects arising from manufacturing faults during the warranty period.
2. Separate components, such as the controller, have their own warranty certificates and specific warranty terms.
3. Warranty repairs will be carried out within 14 days of the date of notification. Notification should be made via the website: <https://kotlospaw.pl/serwis/zgloszenie-serwisowe/>
4. Complaints should be submitted to the retailer or the manufacturer.
5. The person making the complaint is obliged to reimburse the call-out costs in the event of:
 - damage to the boiler and repair of such damage caused by the user,
 - a service call-out to carry out work not covered by the warranty, e.g. adjusting the controller settings according to fuel type, replacing a fuse,
 - it being impossible to carry out repairs for reasons beyond the service technician's control, such as: a lack of mains power to the boiler system, a lack of fuel, a leak in the central heating system, an incorrect or damaged flue pipe, or a lack of access to the boiler
 - difficulties in starting up and operating the boiler due to poor fuel quality or a combustion method not in accordance with the technical documentation.
6. The choice of how to rectify the fault rests with the manufacturer (repair, replacement of specific parts, or replacement of the entire product).
7. The warranty is extended by the duration of the defect rectification.
8. A condition for the complaint to be accepted is strict compliance with the provisions of the Operating and Installation Instructions and the standards legally binding in Poland referred to therein.
9. A complaint will not be accepted in the event of:
 - faulty installation of the central heating boiler,
 - improper operation, failure to carry out thorough periodic cleaning,
 - unauthorised modifications and repairs,
 - any alterations to the boiler's electrical connections,
 - failure by the company that installed the boiler to confirm on the warranty certificate that the boiler was installed in accordance with the operating and installation manual and the standards referred to therein
 - failure to carry out annual, mandatory inspections of the boiler and burner by Serwis Kotłospaw
10. Damage arising from the following is not covered by the warranty:
 - during transport by the customer themselves,
 - during the movement and positioning of the boiler,
 - as a result of improper use,
 - as a result of unforeseen events (flood, fire, etc.)
11. Steel components of the casing and heat exchanger that have corroded are not covered by the warranty as a result of prolonged condensation of water and other products (tarry substances) due to the use of unsuitable fuel and operation of the boiler at excessively low return temperatures.
12. Seals and heat-resistant liners, ceramic cord, actuators for the hopper flap, the spiral tube, the burner temperature sensor, motor capacitors and burner seals are not covered by warranty repairs.
13. For hydraulic kits, the warranty is provided on a D2D (door-to-door) basis and covers the replacement of a faulty part or component with a new one. The warranty period is 24 months from the date of purchase of the appliance.
14. The boiler manufacturer accepts no liability for an incorrectly selected boiler output
15. A claim submitted without the boiler's Warranty Card may not be accepted. When a claim is made, the manufacturer reserves the right to request photocopies of the Warranty Cards and the proof of purchase.
16. The resolution of a complaint must be confirmed by a report.
17. The warranty covers the territory of Poland. This warranty does not exclude, limit or suspend the buyer's rights arising from the non-conformity of the goods with the contract.
18. The customer receives a standard 24-month warranty for the burner and boiler, provided that all guidelines in the boiler's technical documentation are followed. It is possible to extend the warranty to 60 months – see the table 'Warranty extension*' for details.



28. WARRANTY PERIOD

24 months	60 months *
- boiler heat exchanger, - electronics and automation, - igniter: 2 years or 3,500 ignition cycles,	- boiler heat exchanger, provided the appliance has been registered on the website kotlospaw.pl/przedluzanie-gwarancji and the boiler return temperature is maintained at a minimum of 50°C

SERVICE PRICE LIST

You can find the current price list for maintenance services and the scope of work on the website: https://kotlospaw.pl/assets_kotlospaw/uploads/Cennik-i-zakres-uslug-serwisowych.pdf

***WARRANTY EXTENSION**

The customer may take advantage of an additional warranty on the boiler heat exchanger for up to 60 months provided that the unit:

- has been installed and used in accordance with the information contained in this technical manual for the boiler, burner and controller,
- is fitted with a return water temperature protection device set to a minimum of 50°C,
- has been registered within 30 days of the installation date on the website:

www.kotlospaw.pl/przedluzanie-gwarancji,

- paid commissioning of the boiler and paid annual inspections have been carried out by Kotłospaw Service,
- has the necessary boiler documentation in place, in particular the commissioning report and the inspection schedule.

CONFIRMATION OF INSTALLATION AND SAFETY OF THE BOILER
in accordance with PN-91/B-02413 (open system)

BOILER CAPACITY	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW				
EQUIPMENT VERSION	BASIC											
	STANDARD											
	PREMIUM											
	ADVANCED											
SERIAL NUMBER												
YEAR OF MANUFACTURE												

INSTALLER:

Company name:.....

Address/telephone number

USER:

First name and surname:.....

Address/telephone number:.....

.....

I, the undersigned, hereby declare, on my own responsibility, that the above-mentioned boiler has undergone a leak test and has been installed in a correctly fitted central heating system and has been secured as part of an open system in accordance with standard PN-91/B-02413 'Safety measures for open-system water heating installations' and is fitted with the basic safety components:

- an open expansion vessel of the required capacity, protected against freezing,
- safety pipes, and an overflow and vent pipe with diameters corresponding to the heat output of the boiler(s), without shut-off valves or restrictors.

.....
 Date, signature and installer's stamp



CONFIRMATION OF BOILER SAFETY MEASURES
in accordance with PN-EN 12828:2003 (closed system)

BOILER HEAT OUTPUT	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW
EQUIPMENT VERSION	BASIC							
	STANDARD							
	PREMIUM							
	ADVANCED							
SERIAL NUMBER								
YEAR OF MANUFACTURE								

INSTALLER:

Company name:.....

Address/telephone

.....

USER:

First name and surname:.....

Address/telephone number:.....

.....

It is hereby confirmed that the above-mentioned boiler has been installed in a closed system complying with the requirements of PN-EN 12828:2003 'Heating systems in buildings. Design of water-based central heating systems' and has been fitted with the following basic safety components (type, kind, size):

- Expansion vessel -
- Safety valve -
- Thermostatic valve -
- Heat distribution system -

Other applicable regulations, standards and requirements:

.....

.....

Date, signature and stamp of the installer



29. EU DECLARATION OF CONFORMITY

KOTŁOSPAW Sp. z o.o.
38 Szenica Street
63-300 Pleszew

declares, on its own responsibility, that the solid-fuel central heating water boiler with automatic pellet feeding, type:

Type: **InPell**

Power kW

Serial number

Year of manufacture

manufactured by our company, has been designed and placed on the market in accordance with the following directives:

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006

on machinery, amending Directive 95/16/EC.

Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014

on the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment – Article 4(3)

Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010

on the indication, by means of labelling and standard product information, of the consumption of energy and other resources by energy-related products

Commission Delegated Regulation (EU) 2015/1187 of 27 April 2015

supplementing Directive 2010/30/EU of the European Parliament and of the Council as regards energy efficiency labelling for solid fuel boilers and packages comprising a solid fuel boiler, supplementary heaters, temperature controllers and solar devices

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009

laying down general principles for the establishment of ecodesign requirements for energy-related products

Commission Regulation (EU) 2015/1189 of 28 April 2015

implementing Directive 2009/125/EC of the European Parliament and of the Council as regards ecodesign requirements for solid fuel boilers.

including – on the basis of the declaration of conformity for boiler equipment

Directive 2014/35/EU – Low-voltage electrical equipment

Directive 2014/30/EC – Electromagnetic compatibility

based on the following standards and technical specifications adopted for the assessment:

PN-EN 303-5+A1:2023-05 Heating boilers — Part 5: Solid fuel heating boilers with manual and automatic fuel feeding, with a rated output up to 500 kW — Terminology, requirements, testing and marking

PN-EN 12828+A1:2014-05 Heating systems in buildings — Design of water-based central heating systems

PN-EN ISO 12100:2012 Safety of machinery — General principles for design — Risk assessment and risk reduction

WUDT/UC/2003 Pressure equipment

The boilers are certified as complying with the requirements of **emission limit value class 5 in accordance with standard PN-EN 303-5+A1:2023-5 and ecodesign –**

The boiler bears the ‘CE’ marking

Company owner

.....

30. WARRANTY CERTIFICATE

1. Name of central heating boiler: Steel water-filled boiler with automatic pellet burner

BOILER CAPACITY	7 kW	9 kW	11 kW	13 kW	15 kW	18 kW	22 kW	26 kW
EQUIPMENT VERSION	BASIC							
	STANDARD							
	PREMIUM							
	ADVANCED							
SERIAL NUMBER								
YEAR OF MANUFACTURE								

2. The warranty is valid from the date of purchase for

heat exchanger: 24 months

Heat exchanger with return protection* 60 months

Electronics with automation 24 months

* You must register on the website www.kotlospaw.pl and receive a confirmation email with the extended warranty

3. Claims should be submitted via the form on the website:
<https://kotlospaw.pl/serwis/zgloszenie-serwisowe/>

..... Date, stamp and manufacturer's
signature Date, stamp and seller's signature

4. I hereby confirm that the boiler referred to above

- has been installed in accordance with the operating and installation instructions
- has undergone a leak test at a pressure of 4 bar for at least 10 minutes

.....
Date, stamp and legible signature of the company representative,
which installed the boiler



SPACE FOR NOTES

This image shows a full page of blank, lined paper. It features approximately 28 horizontal black lines spaced evenly across the page, typical of standard notebook paper. The lines are thin and extend from the left edge to the right edge. There are no margins, text, or other markings on the page.



BOILER COMMISSIONING AND INSPECTION REPORT

User's full name		Boiler model and capacity	
Telephone		Boiler serial number	
Address		Year of manufacture	
		Burner serial number	

INSTALLER		SERVICE TECHNICIAN	
Telephone		Telephone	
Company stamp		Company stamp	

Checklist	Details	Comments
Supply and extract ventilation system	PRESENT / ABSENT	
Mains voltage and earthing	PRESENT / ABSENT	
Open circuit system installed in accordance with the technical documentation	YES / NO	
Closed circuit constructed in accordance with the Technical Specification	YES / NO	
Room controller	YES / NO	
Flue (insert / ceramic / brick / other)		
Heat dissipation device (closed system)		
Safety valve [bar]		
Return protection		
Software version		
EcoNET UID		

	Commissioning	First inspection	Second inspection	Third inspection	Fourth inspection
Date					
Feeder operating time [h]					
Operating time at minimum power					
Average operating time					
Max. power operating time					
Number of start-ups					
Service Service technician					



COMMENTS	
----------	--

I hereby declare that I have read the operating instructions for the appliance and the terms of the warranty. I acknowledge the manufacturer's recommendations to have the appliance serviced. Furthermore, I declare that I am familiar with the rules for the correct operation and use of the boiler.

DATE AND USER'S SIGNATURE

 KOTŁOSPAW SERVICE CALL REPORT			
This report is to be completed by an authorised service technician of KOTŁOSPAW Sp. z o.o. This report must be completed in the presence of the boiler user, who is obliged to provide the service technician with the boiler documentation, access to the boiler room and all components of the central heating system in the building. Failure to comply with the above requirements will result in the loss of the warranty for the boiler, the coal-feeding system (including the blower and microprocessor) or the pellet burner and its accessories.			
User's full name		Boiler model and output	
Telephone		Boiler serial number	
Address		Year of manufacture	
		Burner serial number	

SERVICE TECHNICIAN		ARRIVAL CONFIRMATION	
Telephone		Date of arrival	
Company stamp		Time of arrival	
		Time of departure	
		Customer's signature confirming working hours	

Checklist	Details	Comments
Boiler documentation completed	YES / NO	
Annual, biennial or subsequent inspections carried out	YES / NO	
Use of certified pellets	YES / NO	
230V installation with earth pin	YES / NO	
Room thermostat	YES / NO	
Flue (insert / ceramic / brick / other)		
Return flow protection		
EcoNET UID		

Description of the application	
Scope of work carried out	
Service notes	

Parts replaced		
Type of repair	UNDER WARRANTY	POST-WARRANTY

RECOMMENDATIONS FOR THE CUSTOMER:

The user has been instructed on how to operate and maintain the device.

Other maintenance and repair work arising from causes not covered by the warranty or the service request will be quoted on a case-by-case basis.

The service has been accepted and no objections are raised



This report is to be completed by an authorised service technician of KOTŁOSPAW Sp. z o.o.

This report must be completed in the presence of the boiler user, who is obliged to provide the service technician with the boiler documentation, access to the boiler room and all components of the central heating system in the building. Failure to comply with the above requirements will result in the loss of the warranty for the boiler, the coal-feeding system (including the blower and microprocessor) or the pellet burner and its accessories.

User's full name		Boiler model and output	
Telephone		Boiler serial number	
Address		Year of manufacture	
		Burner serial number	

SERVICE TECHNICIAN		CONFIRMATION OF ARRIVAL	
Telephone		Date of arrival	
Company stamp		Time of arrival	
		Time of departure	
		Customer's signature confirming working hours	

Checklist	Details	Comments
Boiler documentation completed	YES / NO	
Annual, biennial or subsequent inspections carried out	YES / NO	
Use of certified pellets	YES / NO	
230V installation with earth pin	YES / NO	
Room thermostat	YES / NO	
Flue (insert / ceramic / brick / other)		
Return flow protection		
EcoNET UID		

Description of the application	
Scope of work carried out	



Service comments		
Parts replaced		
Type of repair	UNDER WARRANTY	POST-WARRANTY

RECOMMENDATIONS FOR THE CUSTOMER:

The user has been instructed on how to operate and maintain the device.

Other maintenance and repair work arising from causes not covered by the warranty or the service request will be quoted on a case-by-case basis.

The service has been accepted and no objections are raised

Date and customer's signature

KOTŁOSPAW Sp. z o.o.
38 SZENICA STREET, 63-300 PLESZEW

Service Department:
512-373-828
serwis@kotlospaw.pl

Sales Department:
600-494-315
handlowy@kotlospaw.pl