



PYROMAX



Assembly and User Instructions

robinwood-gmbh.com


ROBINWOOD

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General

General Notes

This manual is intended for:

- ROBIN WOOD system partners
- End consumers

Here you will find the necessary information for the correct operation, installation, and maintenance of the ROBIN WOOD PYROMAX gasification boiler.

The essential requirement for a safe and proper installation of the gasification boiler is the participation of the installing company in a training course at ROBIN WOOD GmbH.

The initial commissioning and annual maintenance can only be performed by a ROBIN WOOD GmbH certified system partner installer.

Note: If the initial commissioning and annual maintenance are not carried out, the warranty will be voided.

This manual contains all the information necessary for the proper operation and use of the system. Please read the manual carefully. If you have any questions, please contact the competent sales partner.

Keep this manual safe so that it is available when needed.

To ensure smooth system operation, it is crucial to use clean and suitable fuel.

Make sure to use only dry and natural wood for maximum efficiency.

Compliance with our instructions is also a condition for the factory warranty. No warranty is provided for damage caused by the failure to follow the above-mentioned safety, usage, or maintenance instructions.

Our customer service is at your disposal for any questions at any time.

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!!! Safety Instructions - WARNING !!!

The safety instructions must be read before operating the appliance!

Failure to follow the safety instructions can result in personal injury, life-threatening situations, or damage to the appliance. Strictly adhering to the instruction manual ensures customer safety and is an integral part of the warranty conditions.

- Initial commissioning, setting, and maintenance must only be carried out by certified system partners of ROBIN WOOD GmbH!
- If the appliance is damaged, it should not be further operated.
- Work on live parts must only be performed by qualified electrical personnel.
- Installation must be carried out by a certified specialized company.
- The wood boiler requires the use of a heat accumulator (buffer) with a capacity of at least 55 liters per kilowatt of boiler power to function correctly.
- Safety devices must be checked at least once a year to ensure proper operation.
- There are rotating parts on the appliance driven by motors. These parts pose a "crushing" risk.
- Unauthorized modifications to the appliance are prohibited as they can endanger people and cause damage to the appliance. Non-compliance results in the loss of approval and warranty of the appliance.
- The accessory used must comply with technical regulations and be approved by the manufacturer for use with this appliance. Only genuine spare parts should be used.
- Safety components must not be repaired or tampered with but should be replaced by authorized personnel.
- During work on the appliance, it must be disconnected from the power supply.
- Fire regulations of the relevant country (e.g., firewalls, etc.) must be adhered to.
- Air supply for combustion must be calculated in accordance with local ventilation system regulations and laws.
- Children, individuals with physical, sensory, or mental limitations, or those without experience/knowledge of appliance operation should not use it.
- The installation location and type of installation of the wood boiler must be selected in accordance with safety instructions. The boiler must be installed away from flammable objects.
- Before each use of the appliance, carefully read the instruction manual. Improper installation can lead to hazardous situations and/or incorrect boiler operation.
- Do not clean the boiler with water. Water can penetrate the boiler, damage electronics, and cause an electric shock.
- The user is responsible for the correct use of the product. In case of improper use, incorrect behavior, or omissions by the user, the company disclaims all liability.
- Unauthorized intervention or replacement by unauthorized individuals or the use of non-original spare parts can cause personal injury and void the company's liability.
- Almost all surfaces of the wood boiler become very hot (door handle, glass, smoke exhaust pipe, etc.). Avoid direct contact with these surfaces. Always wear heat-resistant gloves and use suitable, heat-resistant tools.
- Under no circumstances should you light a fire with the door open or with broken glass.
- The product must be connected to an electrical system with effective grounding.
- In case of a malfunction or malfunction, turn off the wood boiler.
- During product installation, all fire regulations must be observed.
- Properly respond in the event of a chimney fire:
Immediately notify the fire department at the emergency number 999. Close the boiler doors and remove all flammable objects at an adequate distance. Under no circumstances attempt to extinguish the fire on your own.
- Regularly inspect and clean the smoke exhaust ducts of the wood boiler (connection to the smoke exhaust pipe).
- Never use the wood boiler for cooking.
- Always keep the doors closed.

Behavior After a Power Interruption

After a power interruption, the PYROMAX gasification boiler will automatically attempt to restart and optimize combustion.

Follow these steps to get the boiler back into operation:

- (a) Wait for an appropriate period after power is restored to ensure that the electrical supply is stable..
- (b) Keep the loading door closed as instructed and monitor the display along with the restart of the combustion exhaust fan. If there is enough ember in the loading chamber, the boiler will try to stabilize combustion and return to normal mode.
- (c) If the embers have gone out (during a prolonged power interruption), clean the loading chamber before restarting following the instructions, which also apply to the initial commissioning.

WARNING: During a power interruption, the fuel may continue to burn, which could lead to high concentrations of carbon monoxide in the exhaust gases. There may be a risk of explosion!

Behavior in Case of Chimney Fire:

Call the emergency number 999!

Keep the boiler doors closed and remove all flammable objects from the boiler. Under no circumstances attempt to extinguish the fire on your own!

Important Warning Regarding Heating System Modifications:

It is strictly prohibited to make changes to the heating system or make modifications independently. This is for your personal safety and to ensure the proper operation of the gasification boiler

Important Notes:

1. Use only wood with a moisture content of less than 25% (at least 1 year dried wood).
2. Operate the wood gasification boiler only with an appropriate return temperature increase of 60°C.
3. A buffer tank must be connected.
4. Closed central heating systems require an expansion vessel (minimum 10% of the system volume).
5. Open central heating systems require an open expansion vessel (minimum 7% of the system volume).

Regulations

The proper use of the boiler is intended exclusively for hot water heating systems according to DIN EN 12828. Please read the product information carefully before commencing installation to prevent damage due to improper installation. Installation must be carried out by professional companies in accordance with recognized technical standards and applicable regulations and norms. Please also consider country-specific regulations. Warranty becomes void in case of improper installation or non-intended use.

The following guidelines and standards in their respective current versions must be observed:

- Heating Appliance Directive DIN EN 303-5
- DIN 1988
- DIN EN 806
- DIN EN 12828
- DIN 4759-1

- VDI 2035
- DIN VDE 0100
- DIN VDE 0105
- Regulations on Combustion Systems
- Boiler - Part 5: Boilers for solid fuels, manually and automatically fired furnaces
- Technical Rules for Drinking Water Installations
- Building Heating Systems - Planning of Hot Water Heating Systems
- Heat Generation Systems for Multiple Energy Types; A Solid Fuel Burning and an Oil or Gas Burning System with Only One Chimney; Safety Requirements and Testing
- Prevention of Damage in Hot Water Heating Systems
- Installation of Low Voltage Systems
- Installation of High Voltage Systems
- Operation of Electrical Systems

Note: This list is not exhaustive. Please keep an eye on updates and new publications.

Technical Data

PYROMAX 22kW / 32kW / 40kW / 49kW



- Compact design.
- Suitable for use in both commercial and domestic settings.
- PYROMAX - The ultimate choice for unbeatable quality-price ratio in the market!



Technology

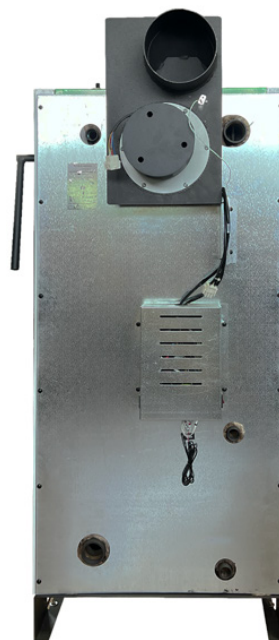


Certificates

EN 303-5
Ecodesign





Visual Elegance: The PYROMAX Photo Gallery





Welcome to PYROMAX: Your Power and Flames Expert





- 


Excellence and Low Emissions Experience
Thanks to our high-temperature combustion chamber, we offer you an exceptional heating experience characterized by high performance and reduced emissions. You can enjoy eco-friendly and efficient combustion, contributing to environmental preservation.
- 


Generous Loading Space
Our Pyromax offers ample loading space, allowing you to burn logs up to half a meter long. This means longer refilling intervals and greater convenience for you.
- 


Automatic and Programmable Ignition
Fire ignition has never been easier. Our Pyromax features an automatic ignition system programmable through an integrated timer or a temperature sensor. This makes starting the fire a breeze, allowing you to relax while your Pyromax takes care of everything.
- 


Intelligent Combustion Control
Our advanced combustion control ensures unparalleled combustion quality. Numerous hydraulic functions, such as temperature difference control and tank management, ensure efficient and optimized performance.
- 


Precise Primary Air Control
With our convenient manual regulator, you have precise control over the primary air. It's in your hands to ensure optimal combustion.
- 

Protection and Efficiency
Our attachable flame arrestors not only protect the inside of the boiler but also ensure logs flow correctly, eliminating concerns about possible interruptions.
- 

Safety During Refilling
The aspiration of pyrolysis gases during log reloading prevents the release of harmful fumes, ensuring maximum comfort and safety.
- 

Precise Draught Control
Our variable-speed draught fan offers precise draught control, allowing you to create the ideal combustion environment to maximize efficiency.
- 

Maximum Efficiency with Turbulator Technology
Our innovative turbulator technology further increases efficiency, allowing you to get the most out of your fire.
- 

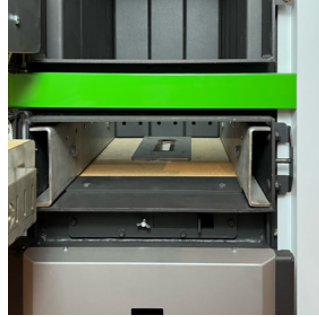
High-Quality Thermal Insulation
Our Pyromax features high-quality thermal insulation that minimizes heat loss, ensuring optimal utilization of produced heat and efficient heating.
- 

Easy and Quick to Clean
Cleaning our Pyromax is a simple and fast operation, allowing you to fully focus on the fire experience. We offer convenient cleaning options to make maintenance a breeze.

Discover the perfect synergy between **performance, comfort, and efficiency: PYROMAX.**
Your dependable companion for an unparalleled fire experience



The high-temperature combustion chamber ensures exceptional performance and minimal emissions.



Thanks to air preheating, Pyromax provides high-efficiency, eco-friendly combustion.



The generous loading space comes with attachable aprons.



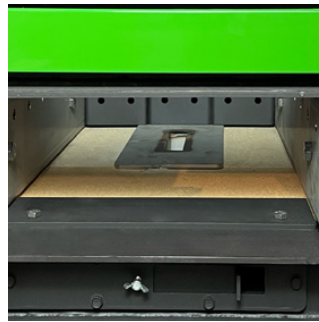
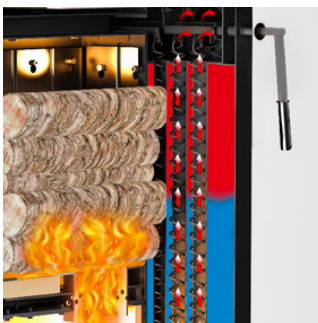
Our advanced combustion controller ensures exceptional combustion quality through precise monitoring and control of combustion processes. It optimally regulates air intake and minimizes harmful emissions. Additionally, the controller comes with a standard power plug and an integrated fuse for easy installation and enhanced safety. Pump connection is pre-installed, simplifying integration into the heating system.



The spacious loading space of the Pyromax allows for the combustion of half-meter logs, ensuring longer refilling intervals. You can prepare the fire by filling the combustion chamber and loading the ignition basket with pellets. The combustion can be initiated and controlled through a timer or the buffer temperature.



Thanks to the convenient manual control lever of the Pyromax, you have complete and precise control over the primary air intake. Pyrolysis gas suction technology prevents any smoke leakage during log reloading. The variable-speed fan ensures precise draught control, allowing you to create the ideal combustion environment. This way, you can enjoy exceptional comfort and total safety without compromises.



Thanks to the innovative turbulator technology, you achieve clean and efficient combustion with maximum efficiency. This technology also simplifies the cleaning of Pyromax's heat exchangers. Turbulators also help reduce soot buildup and deposits in the heat exchanger tubes, making appliance cleaning and maintenance easier. Make the most of your fire, enjoying eco-friendly heating, and benefit from easy-to-use heat exchanger cleaning.

The main features

- ① High-temperature combustion chamber for exceptional performance and minimal emissions.
- ② Generous loading space for wood logs up to half a meter (50 cm) long.
- ③ Reliable ignition with a high-quality ceramic ignition element and pellets.
- ④ Programmed automatic ignition via the integrated timer or temperature sensor.
- ⑤ Intelligent combustion control for excellent combustion and numerous hydraulic functions such as temperature difference adjustment and buffer loading.
- ⑥ Convenient manual control knob for precise adjustment of primary air.
- ⑦ Attachable aprons for protecting the interior of the boiler and ensuring safe wood log placement
- ⑧ The aspiration of pyrolysis gases prevents smoke from escaping during wood log reloading.
- ⑨ Variable-speed draught fan for precise draught control.
- ⑩ Innovative turbulator technology for optimized efficiency enhancement.
- ⑪ High-quality thermal insulation to minimize radiant heat losses.
- ⑫ Easy and convenient cleaning options.



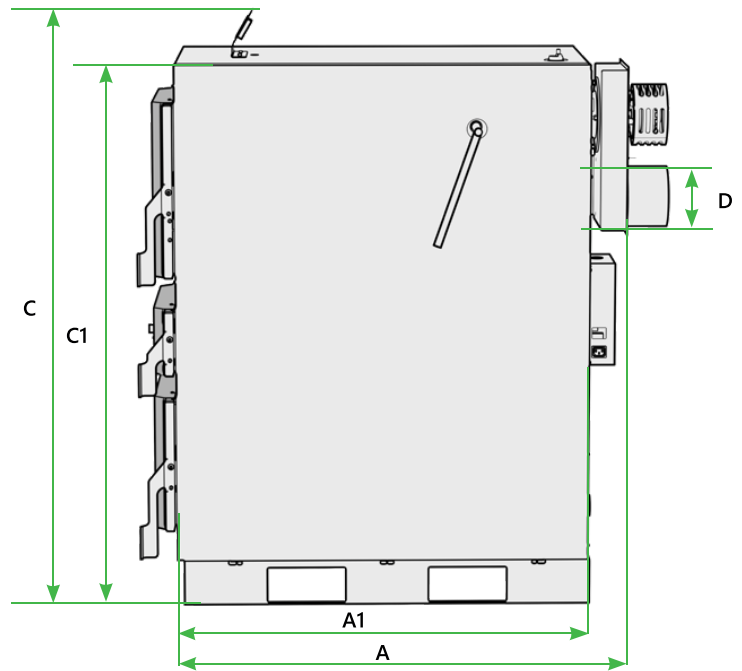
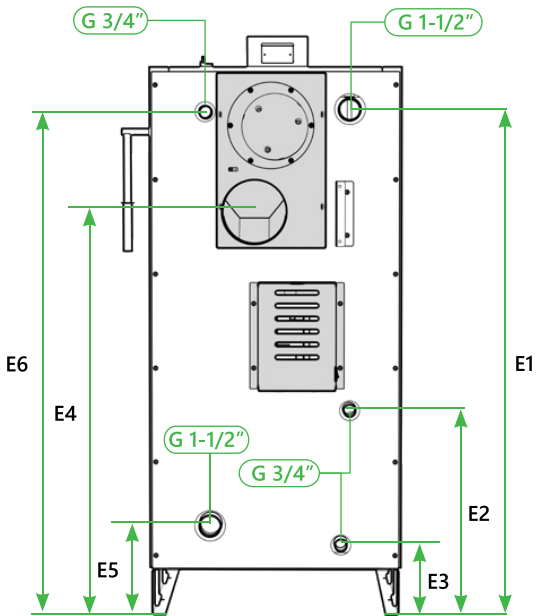
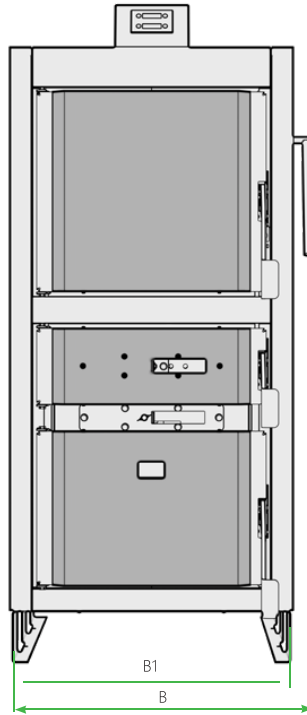
Technical data

ROBIN WOOD PYROMAX		22	32	40	49
Nominal thermal power	kW	22	32	40	49
Range of thermal power	kW	11-22	16-32	20-40	25-49
Boiler class EN 303-5:2021		5			
Minimum draft required in the chimney at nominal power	Pa	14	18	18	21
Minimum draft required in the chimney at reduced power	Pa	10	12	12	10
Quantity of water in the boiler	Liter	120	130	140	150
Exhaust gas temperature at nominal thermal power	°C	165	160	150	150
Exhaust gas temperature at minimum heating power	°C	100	100	100	95
Minimum operating time at nominal power (nominal power-Q)	hours	3	3	3	3
Minimum supply temperature (return temperature)	°C	60			
Maximum water temperature	°C	90			
Type of fuel		Natural split firewood, with a residual moisture content <20%, compliant with standard 14964-5.			
Fuel moisture content	%	max 20 %			
Length of firewood	mm	500	500	500	500
Combustion chamber volume	Liter	103	103	103	136
Type of combustion chamber		sealed chamber			
Minimum required buffer tank volume		according to EN 303-5:2021			
Supply voltage	V	230			
Frequency	Hz	50			
Weight	kg	424	449	479	526
Maximum operating pressure	bar	3			
Outer diameter of the combustion gas pipe	mm	149			
Heating appliance operation	kW	with draft fan			
Boiler energy efficiency class		A+			
Energy efficiency index (EEI)		111	111	113	112
Annual efficiency for space heating η_{s}	%	80	80	80	80
Efficiency at nominal thermal power	%	92	92	93	92
Efficiency at reduced power	%	95	95	95	95
CO ₂ emissions at nominal thermal power	%	13,71	13,71	14,44	14,61
CO ₂ emissions at reduced power	%	14	14,39	10,83	14,54
CO emissions at nominal thermal power (13% / O ₂)	mg/Nm ³	94,95	110,71	101,96	297,90
CO emissions at reduced power (13% / O ₂)	mg/Nm ³	106,63	378,61	128,65	118,29

Technical data

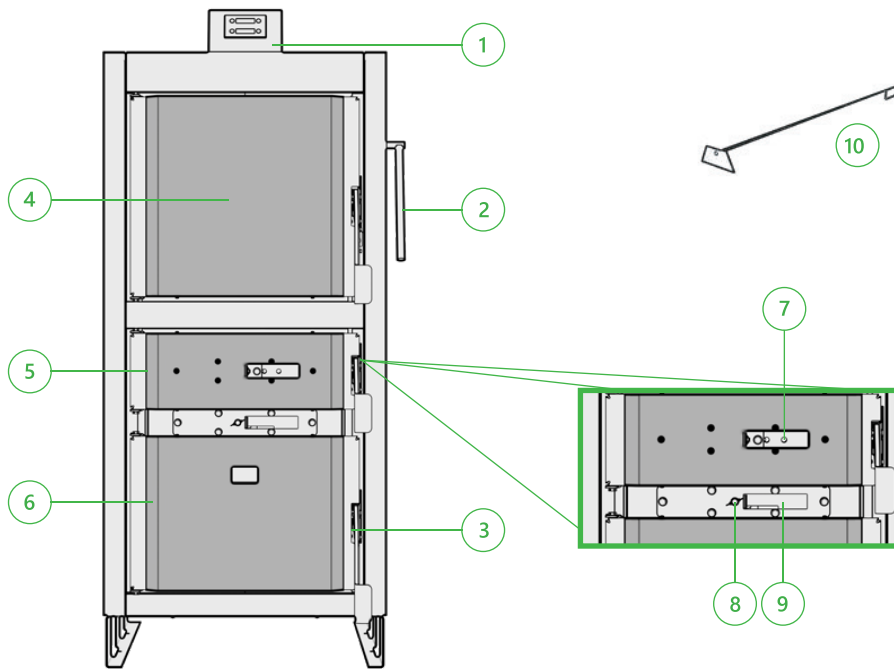
NOx at nominal thermal power (13% / O ₂)	mg/Nm ³	136,24	131,91	139,75	135,83
NOx at reduced power (13% / O ₂)	mg/Nm ³	126,89	79,60	136,28	109,93
OGC (Organic Gaseous Compounds) at nominal thermal power (13% / O ₂)	mg/Nm ³	8,31	1,67	2,23	7,25
OGC (Organic Gaseous Compounds) at reduced power (13% / O ₂)	mg/Nm ³	7,64	5,57	5,41	2,65
Particulate matter at nominal thermal power (13% / O ₂)	mg/Nm ³	7,39	7,24	3,94	8,02
Particulate matter at reduced power (13% / O ₂)	mg/Nm ³	9,37	4,76	6,41	12,25
Mass flow rate of exhaust gases at nominal thermal power	g/s	26,04	35,77	15,57	63,49
Mass flow rate of exhaust gases at reduced power	g/s	13,37	35,21	8,23	27,79
Velocity of exhaust gases at nominal thermal power	m/s	1,79	1,62	2,54	1,84
Velocity of exhaust gases at minimum power	m/s	1,88	1,71	1,94	1,88

Dimensions

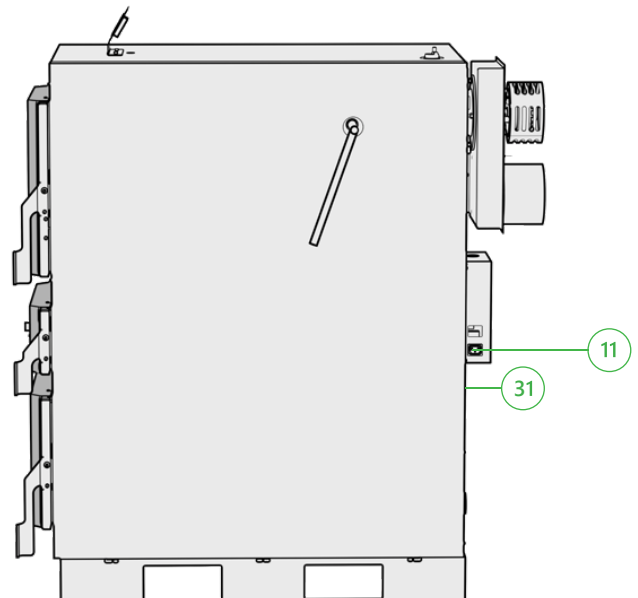


	A (mm)	A1 (mm)	B (mm)	B1 (mm)	C (mm)	C1 (mm)	D (mm)	E1 (mm)	E2 (mm)	E3 (mm)	E4 (mm)	E5 (mm)	E6 (mm)
22	1135	1016	663	590	1387	1280	Ø 149	1180	480	165	943	210	1174
32	1185	1066	663	590	1387	1280	Ø 149	1180	480	165	943	210	1174
40	1255	1136	663	590	1387	1280	Ø 149	1180	480	165	943	210	1174
50	1255	1136	663	590	1537	1430	Ø 149	1330	630	165	1093	210	1324

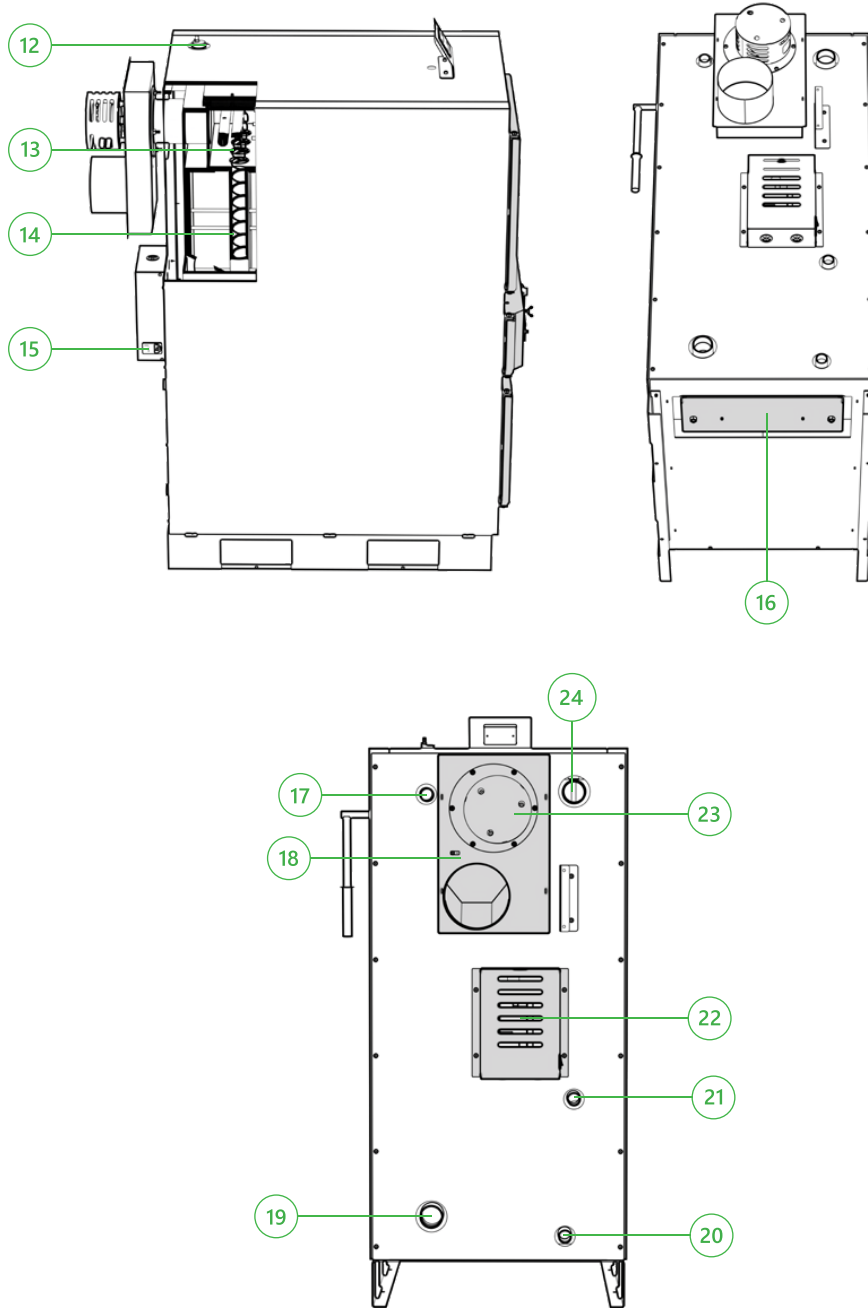
Overview of PYROMAX Wood Gasification Boiler Components



1	Boiler digital display
2	Flue gas pipe cleaning lever
3	Door handle
4	Upper boiler door
5	Middle boiler door
6	Lower boiler door
7	Primary air slider
8	Fastening screw for secondary air slider
9	Secondary air slider
10	Cleaning tool
11	Electrical connection for pump (return)
31	Buffer sensor connection



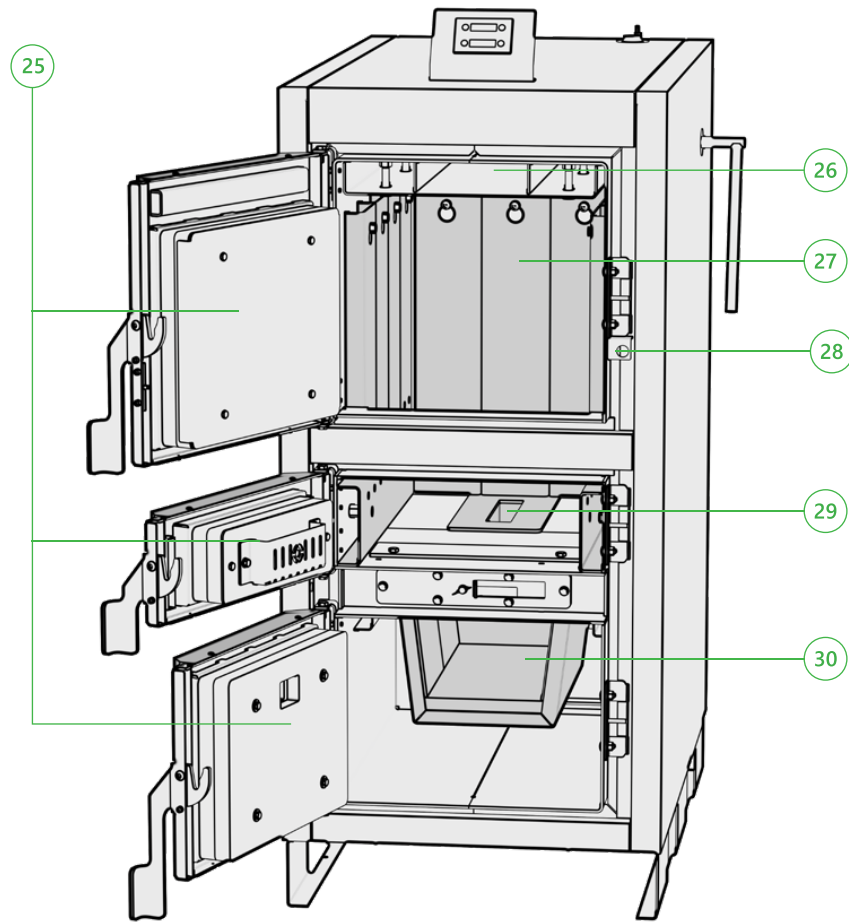
Overview of PYROMAX Wood Gasification Boiler Components



12	Vent
13	Cleaning mechanism for flue gas pipes (heat exchangers)
14	Turbulators
15	On/Off switch
16	Lower maintenance door
17	Connection of the capillary tube of the TAS (Thermal safety discharge device)
18	Flue Gas Temperature Sensor

19	Heating water inlet (Return temperature increase)
20	Drainage
21	TAS - Thermal Safety Discharge Device (Connected to the heating water inlet)
22	LCG Electronic Control Plate
23	Draught Fan
24	Heating water inlet (Connected to the return temperature increase)

Overview of PYROMAX Wood Gasification Boiler Components



25	Heat-resistant panels
26	Flue gas intake duct (with open door)
27	Protective housing
28	Door sensor (door open)
29	Burner
30	Combustion chamber

1. General Information on the Use of the PYROMAX Wood Gasification Boiler

The PYROMAX wood gasification boiler is a high-performance heating solution designed for efficient wood combustion. With rated thermal outputs of 22, 32, 40, and 49 kW, it is ideal for heating small to medium-sized homes. This boiler is based on the principle of wood gasification, also known as pyrolysis, which allows for the complete and environmentally friendly burning of wood.

Key Features:

Efficient Wood Gasification: Thanks to pyrolysis technology, wood is fully burned in a large combustion chamber, achieving optimal energy yield.

Long Combustion Duration: A single load of 50 cm firewood allows for at least 3 hours of burning. If needed, combustion can be automatically adjusted throughout the day to meet heating requirements.

Automatic Regulation: Combustion is controlled by an integrated regulation system that ensures precise and efficient burning.

Storage Requirement: The PYROMAX boiler must be connected to a storage tank with a capacity of at least 55 liters per kilowatt of boiler power to ensure optimal heat distribution.

Compliance with Standards: The boiler complies with the requirements of EN 303-5 and features excellent gasification, resulting in minimal environmental impact.

Natural Wood Combustion: The boiler is specifically designed for the combustion of natural wood and employs a system for guiding exhaust gases and additional combustion of smoke gases to achieve high efficiency.

User-Friendly: The PYROMAX boiler is designed with the user in mind and features a reliable built-in control system that ensures smooth operation.

Flexibility in Ignition: After loading the wood gasifier, ignition can be programmed for any time of the day using a built-in timer or the sensor in the storage tank.

The PYROMAX wood gasification boiler represents a reliable and cost-effective heating choice for those who want to heat their homes in an environmentally friendly way. Thanks to its efficient wood gasification technology and automatic control, it offers a convenient and sustainable method for heating your home.

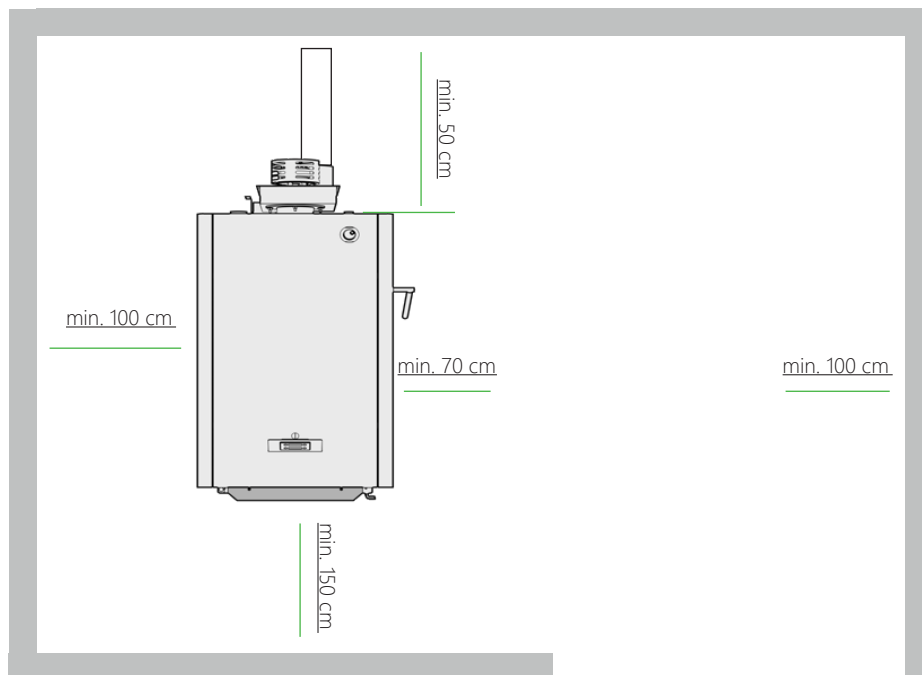
2. Positioning and Installation of the PYROMAX Wood Gasification Boiler

The installation of the PYROMAX wood gasification boiler requires the expert knowledge of an authorized technician. It is strongly recommended to place the boiler on a stable concrete base with a height of 50-100 mm. The boiler room must be adequately protected from freezing and should have sufficient ventilation. The arrangement of the boiler should ensure both chimney connection and accessibility for maintenance, cleaning, and servicing operations.

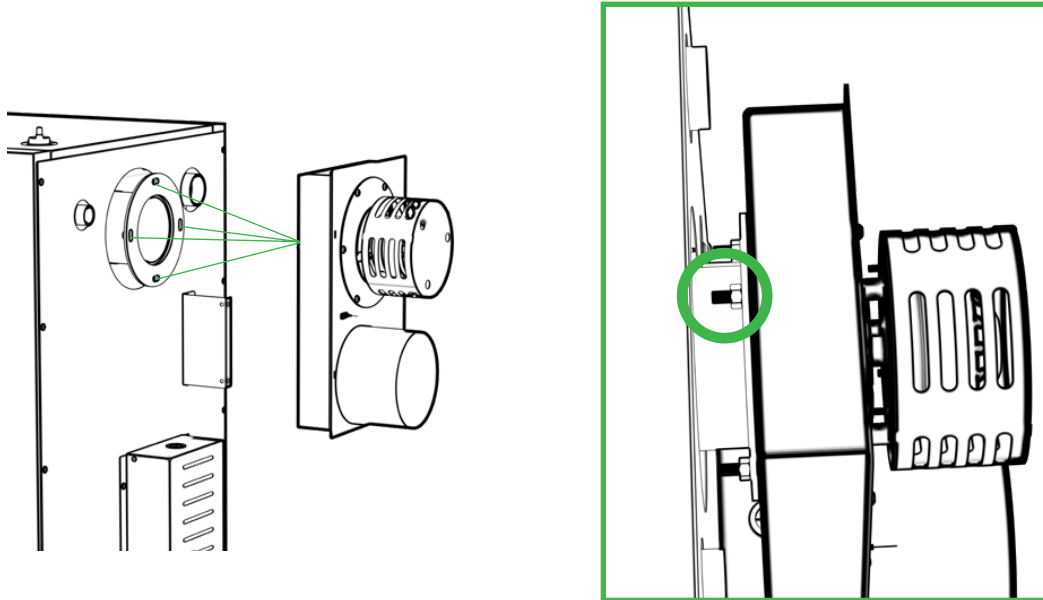
Connecting the boiler to the central heating system requires the use of one or more storage tanks, depending on the boiler's power. It is recommended to connect a minimum water quantity of 55 liters per kW of rated power. For example, for a 40 kW boiler, a minimum volume of 2200 liters is recommended. It is essential to note that the boiler should never be used without a storage tank.

The connection between the boiler and the storage tank must be made exclusively through a three-way return valve, which maintains the return temperature at a value above 60°C. This ensures the proper operation of the system and contributes to the efficiency of the heating process.

Minimum Distance from Room Walls



2.1 Installation of the Combustion Air Intake Fan



Installation of the combustion air intake fan

1. Place the combustion air intake fan on the designated connection points on the boiler.
2. Secure the fan with the provided threaded screws.
3. Use the 4 nuts (M8) provided with the boiler mounting kit to firmly attach the fan.
4. Tighten the nuts evenly to ensure a stable installation.
5. Verify that the combustion air intake fan is securely fastened and has no play.
6. Ensure that all tools have been removed, and the mounting area is clean.
7. If necessary, refer to the manufacturer's instructions and follow safety precautions.

3. Connecting to the Chimney

Instructions for chimney connection in accordance with DIN 4705 and EN 1856-2:2004

Chimney Connection for Heating Appliances: Guidelines and Recommendations

Before proceeding with the chimney connection, it is crucial to carefully follow the following instructions to ensure safe and efficient operation of your heating appliance. Please note that, before installation, you must obtain approval from your competent chimney inspector.

3.1 Planning and Preparation

3.1.1 Check Technical Data: Ensure you have the technical data for your heating appliance and chimney. This data is essential for correctly sizing and installing the chimney connection.

3.1.2 Choose the Right Connector: The connector between the heating appliance and the chimney must comply with EN 1856-2:2004 and must have the required CE marking. We recommend using insulated connectors to minimize heat transfer to flammable structures.

3.1.3 Respect Safety Distance: If insulated connectors are not used, a minimum distance of 40 cm from flammable structures must be maintained according to EN 1856-2:2004.

3.1.4 Consider Diameter: Ensure that the calculated chimney diameter is not smaller than the discharge connector of your boiler. A diameter that is too small could compromise chimney draft..

3.2 Chimney Connection Installation

3.2.1 Exhaust Pipe Route: Position the exhaust pipe towards the chimney to make it as short and upward as possible. Avoid unnecessary bends to ensure optimal exhaust gas flow.

3.2.2 Aerodynamic Insertion: Insert the exhaust pipe into the chimney in an aerodynamic manner, with a rounded end facing upward to reduce turbulence and improve exhaust gas flow.

3.3 Operation and Safety

3.3.1 If a gas or oil boiler is used in combination with a wood boiler on the same chimney, the system must comply with DIN 4759. Ensure that the forced lockout is controlled by an appropriate exhaust thermostat.

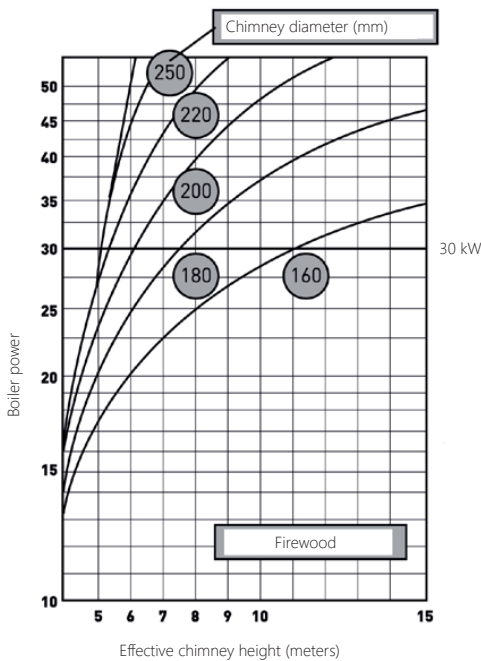
3.3.2 Exclusion of Cookstoves and Fireplaces: Never use cookstoves or fireplaces in combination with a wood boiler on the same chimney. This could cause dangerous backflows of exhaust gases.

3.4 Conclusion and Verification

3.4.1 Closure Work: Ensure that all connectors have been correctly installed, and all connections are airtight to prevent exhaust gas leaks.

3.4.2 Inspection by the Chimney Inspector: Before putting the heating appliance into operation, have your installation inspected by your competent chimney inspector. The chimney inspector's approval is necessary to ensure safety and compliance with the installation.

By following these instructions and relevant regulations and standards, you can ensure a safe and efficient chimney connection for your heating appliance.



The correct chimney size is of fundamental importance to ensure the proper functioning of the boiler. The chimney should be designed to allow effective exhaust gas removal while simultaneously ensuring the necessary air supply to the boiler.

The following diagrams illustrate how chimney height is selected in relation to its diameter and the boiler's power. Accurate selection of chimney insulation is crucial and should have a thickness ranging from 30-50 mm. Proper determination of chimney diameter and height is essential for the boiler's correct operation.

To meet these requirements, it is advisable to consult with the manufacturer's chimney experts and have a chimney calculation performed. The minimum chimney height for PYROMAX wood boilers is 6 meters. For the chimney, use stainless steel components to minimize condensation formation.

Fresh air opening

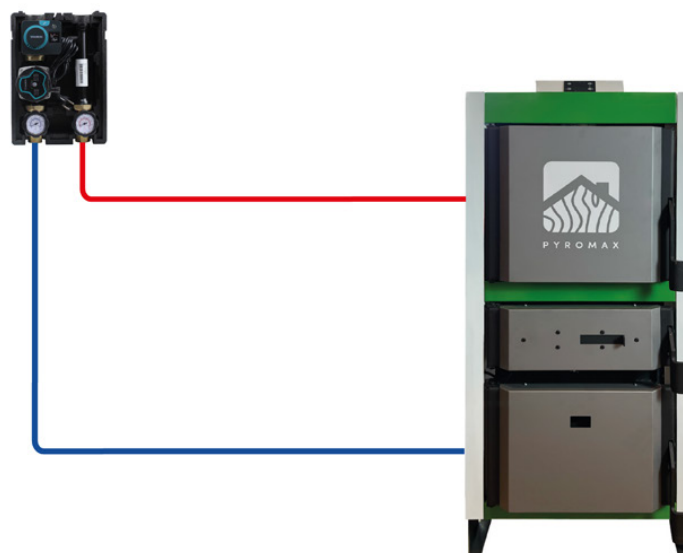
The room in which the system is installed must have an adequate opening for fresh air, the size of which should be appropriate for the boiler's power (the minimum opening area is calculated according to the equation below). This opening should be protected by a grille or a screen. All installation work must be carried out in accordance with the applicable national and European regulations. The boiler can only be used in environments that are neither flammable nor subject to explosion risk.

The required opening area (A) is determined by the following equation:

$$A = 6.02 \times Q$$

Where A represents the opening area in cm², and Q represents the boiler's power in kW.

Exemplary diagram for the installation of an anti-condensation valve (return lifting). A recommended setting for the valve is at least 60°C.



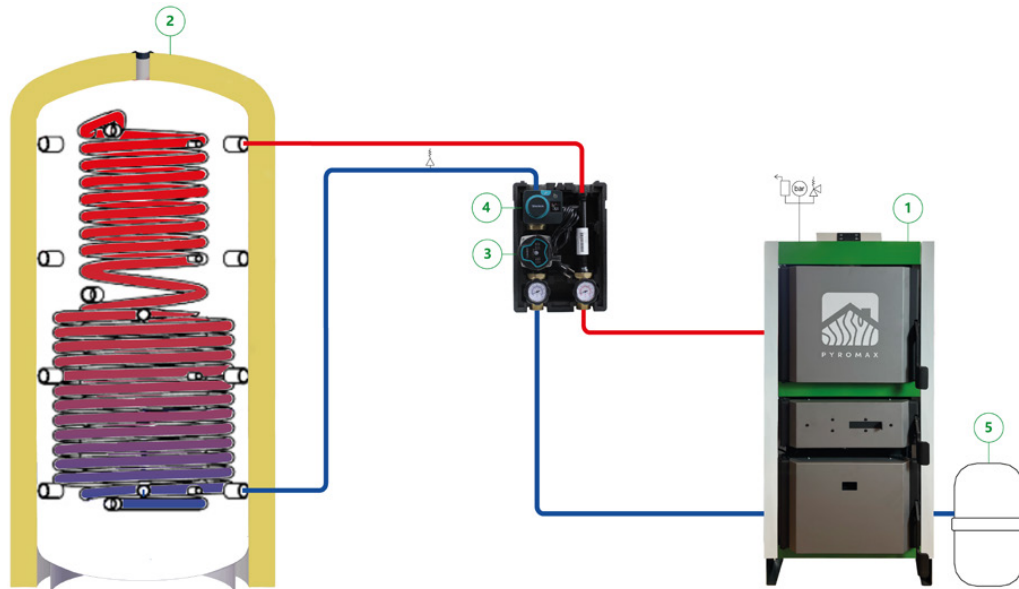
4. Connection to the Central Heating System

All installation work must be carried out precisely in accordance with current national and European regulations. The PYROMAX wood boiler is suitable for both closed and open central heating systems. In both cases, wood logs are used as fuel. The installation should be performed by a qualified professional in compliance with technical standards to ensure the proper operation of the boiler.

The connection between the boiler and the central heating system should not extend beyond the top rear cover of the enclosure, as this could compromise the removal of the turbulators and the cleaning of the exhaust gas tubes. Before integrating the boiler into the central heating system, thorough flushing is required to remove any residues from the installation. This minimizes the risk of boiler overheating and potential issues such as system noise, pump malfunctions, and mixing valve problems.

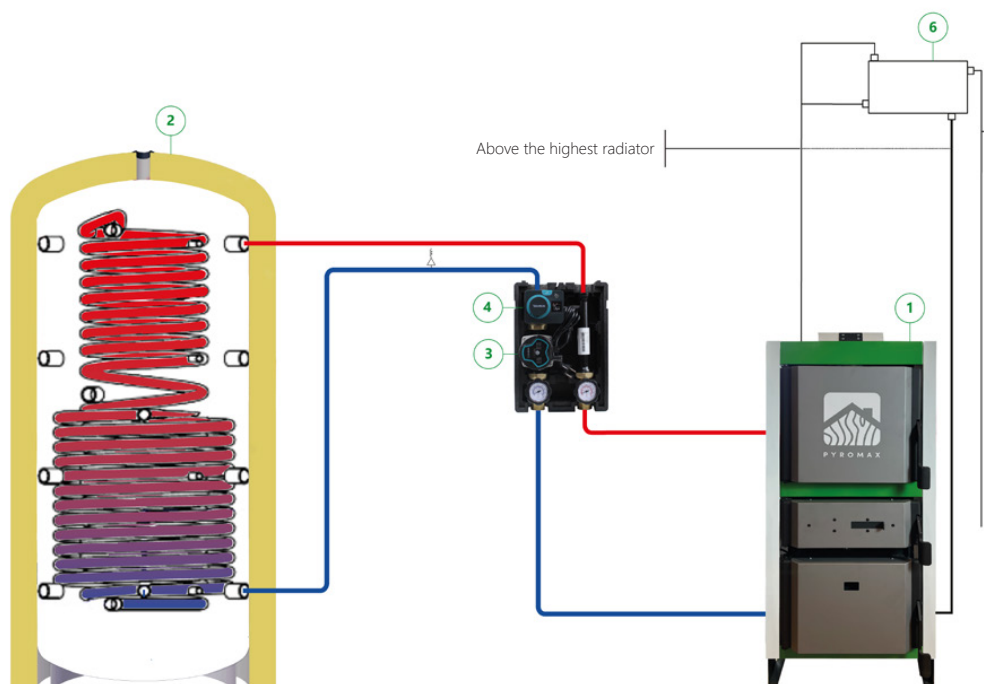
The connection of the boiler to the central heating system should always be done using fittings and never through welding.

Here is an example diagram 1 for the installation of the wood gasification boiler in a closed central heating system with a return temperature increase to 60°C.



1	Wood gasification boiler PYROMAX
2	Heat accumulator (Buffer)
3	High-efficiency recirculation pump
4	3-way mixing valve (minimum temperature of 60°C) or 3-way mixing valve with actuator
5	Expansion tank for closed heating systems (approximately 10% of the total system volume)
6	Open expansion tank for open heating systems (approximately 7% of the total system volume)

Here is an example diagram 2 for the installation of the wood gasification boiler in an open central heating system with a return temperature increase to 60°C



4.1 Connection to Closed Central Heating System

In closed central heating systems (as illustrated in example diagram 1), specific requirements are in place for the connection. A certified safety valve with an opening pressure of 2.5 bar, a minimum seat diameter of 15 mm, a minimum inlet connection of 1/2", and a minimum outlet connection of 3/4" is required. Additionally, a diaphragm expansion tank must be installed. Both components must comply with professional standards, and there should be no valve between the safety valve, expansion tank, and the boiler.

The closed heating system requires an expansion tank with a larger volume, approximately 10% of the total heating system volume. For all types of boilers, it is necessary to connect the heating pump to the boiler control to regulate the pump's activity based on the boiler water temperature.

Depending on the nominal power of the wood gasification boiler, one or more heat accumulators are required. It is recommended to use at least 55 liters of water per kW of nominal power (for example, for a 40 kW PYROMAX wood gasification boiler, a water tank volume of 2200 liters is recommended). Using the wood gasification boiler without a connection to the heat accumulator is prohibited. The connection to the heat accumulator should be made exclusively through a three-way return pump to ensure that the return water maintains a minimum temperature of 60°C before returning to the boiler.

4.2 Connection to Open Central Heating System

For integrating the wood gasification boiler into an open central heating system, example 2 in the diagram illustrates a possible type of connection. It is essential to connect the loading pump to the wood gasification boiler control in such a way that the pump's activity is regulated based on the boiler water temperature. The return of the water prevents condensation from forming.

To connect the wood gasification boiler to an open central heating system, it is necessary to install an open expansion tank above the highest radiator. If the expansion tank is located in an unheated area, proper insulation is required. The volume of the open expansion tank should correspond to approximately 7% of the total heating system volume. Depending on the nominal power of the wood gasification boiler, at least one heat accumulator is required. For a nominal power of 40 kW, a water tank volume of 2200 liters (55 liters per kW of nominal power) is recommended.

The wood gasification boiler can only operate when connected to the heat accumulator. The connection to the heat accumulator should be made through a three-way return pump to ensure that the return water has a minimum temperature of 60°C and returns to the boiler."

Thermal Protection and Overheating Protection for the Boiler

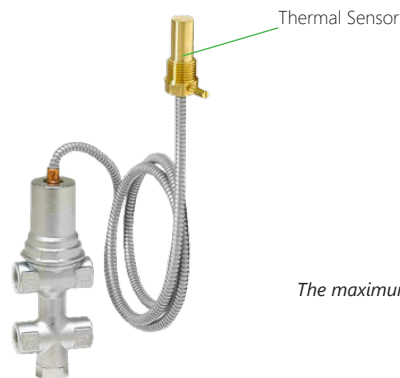
In the context of European standards EN, it is necessary to implement thermal protection for the boiler in a closed heating system. The boiler has been factory-prepared for the integration of thermal protection. Additionally, the Thermal Safety Valve (TAS) is used to protect the boiler from overheating.

At a temperature of approximately 100°C, the thermal safety discharge valve opens, allowing cold water to flow into the boiler to reduce the boiler temperature.

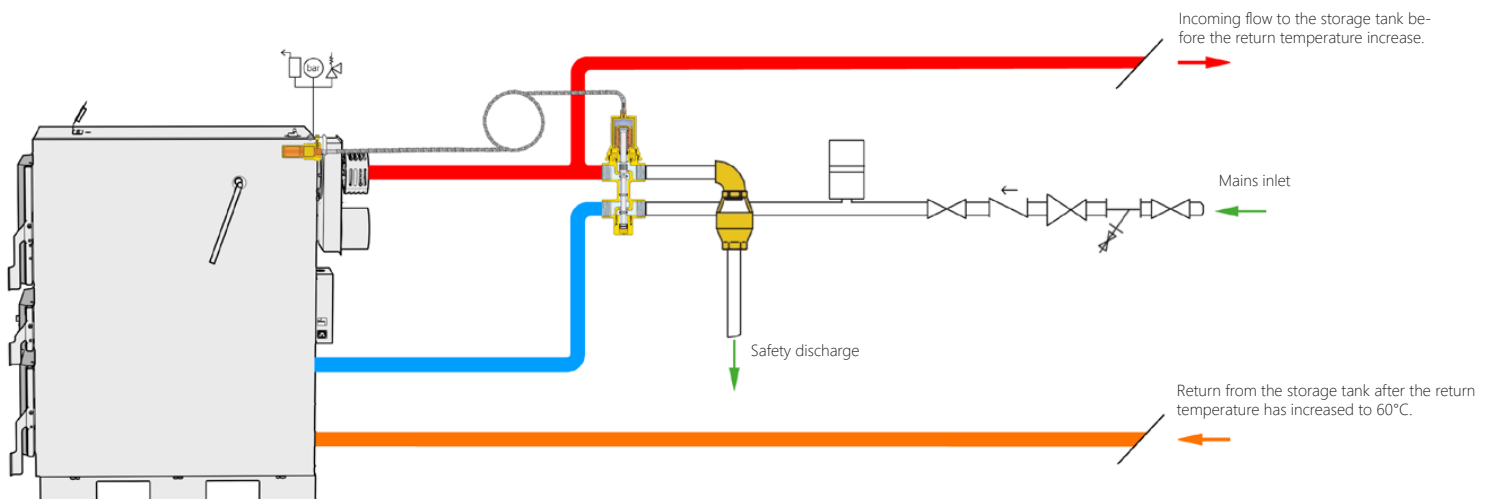
Important Information:

- The warranty becomes void if the boiler, when installed in a closed heating system, is damaged due to overheating and neither the boiler nor the system is equipped with adequate thermal protection or if it has not been installed correctly.
- The thermal protection must be connected to the water supply of the structures served by the water network and not from a cistern. This is because, in case of a power outage, the boiler could overheat, and the cistern would not be able to provide the necessary water supply.

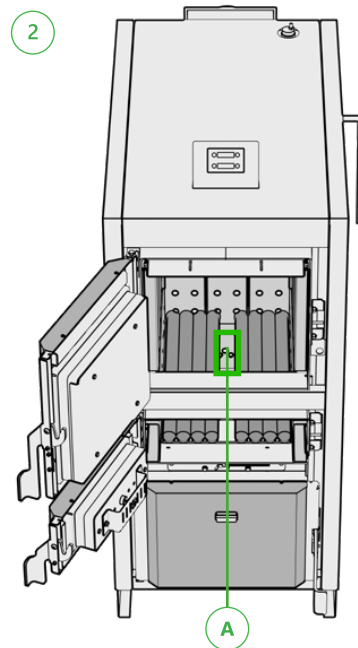
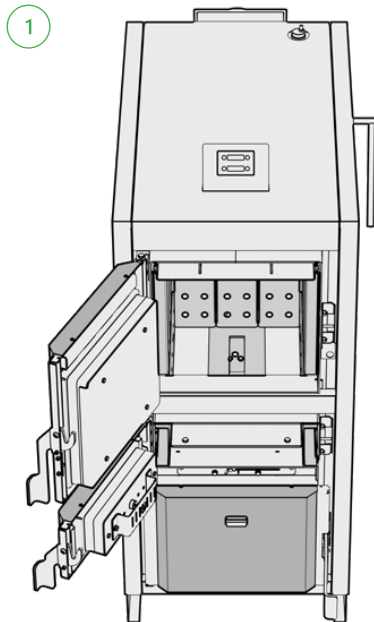
Thermal relief valve



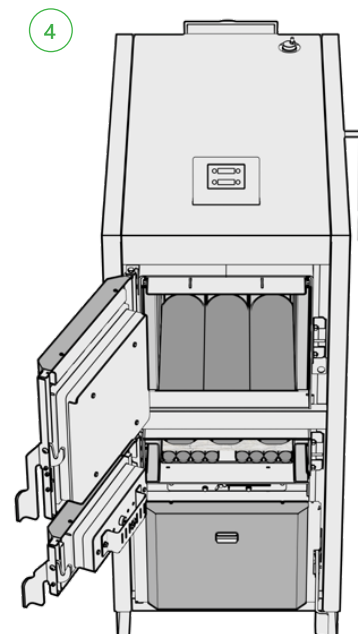
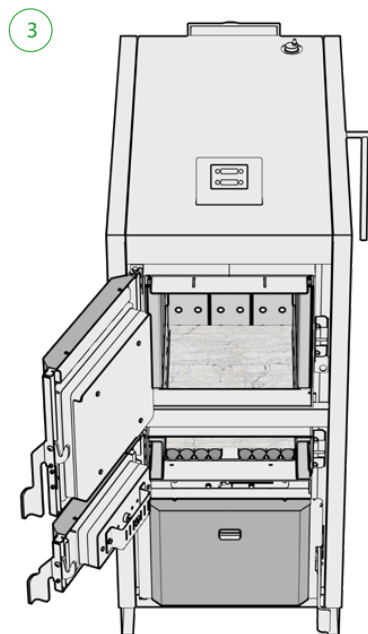
The maximum allowed length of the thermal sensor is 120 mm.



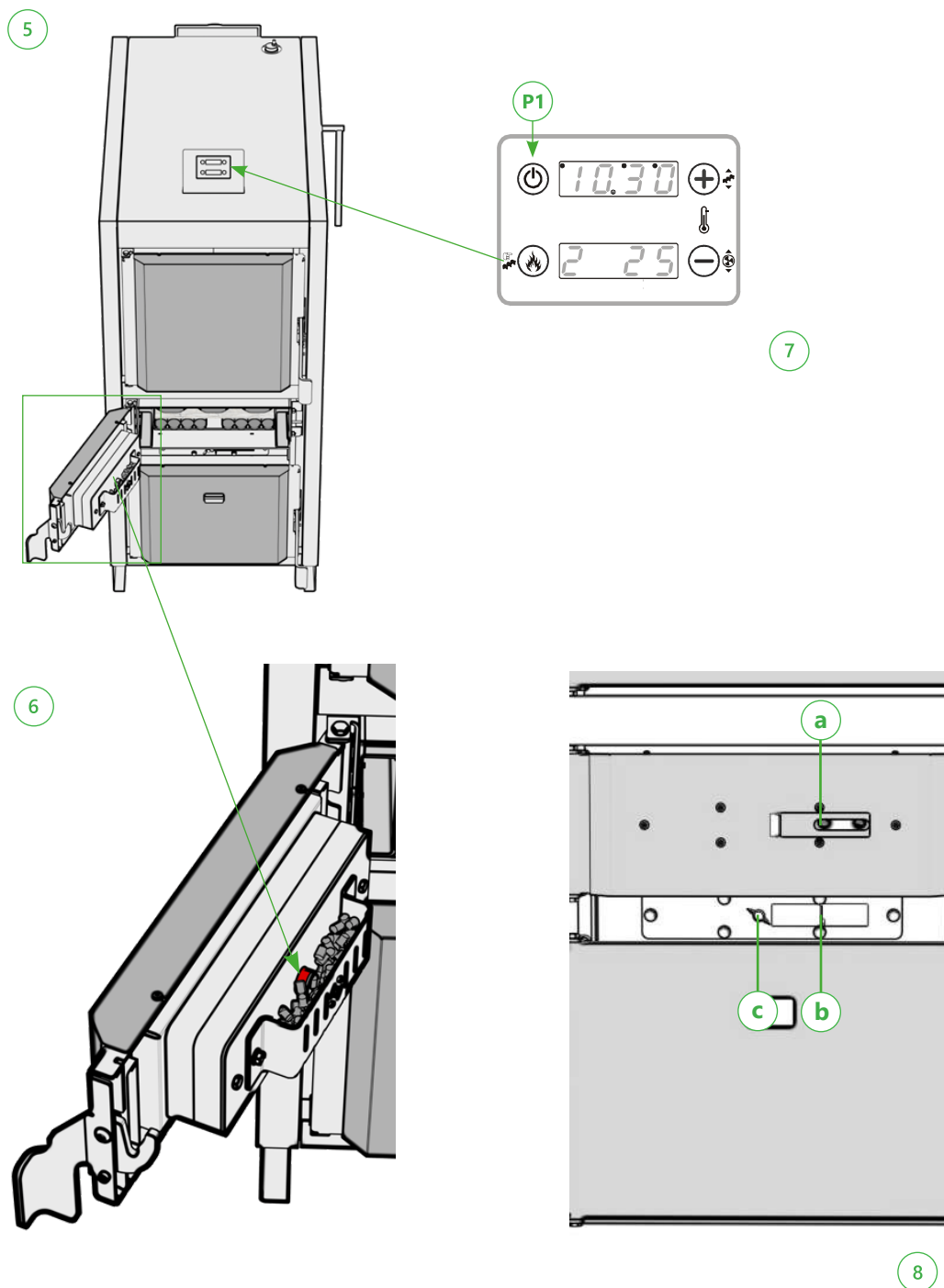
5. Ignition method



1	<ul style="list-style-type: none"> • Open the upper and middle doors. • Check the ash level in the combustion/filling chamber and empty it if necessary. It is recommended not to remove ashes from the combustion/filling chamber after each heating but only when the middle row of holes in the combustion/filling chamber is no longer visible. This protects the combustion/filling chamber.
2	<ul style="list-style-type: none"> • Place a layer of firewood. • Use firewood with a length of approximately 50 cm and arrange it longitudinally. • Do not cover the burner nozzle (A) (leave it uncovered).



3	<ul style="list-style-type: none"> • After placing the first layer of firewood, cover the entire surface with cardboard.
4	<ul style="list-style-type: none"> • Fill the fuel loading chamber and close the fuel loading chamber door.



5	<ul style="list-style-type: none"> • Keep the central door open
6	<ul style="list-style-type: none"> • Fill the pellet basket with pellets. • Close the central door.
7	<ul style="list-style-type: none"> • Initiate the ignition procedure by pressing and holding button (P1).
8	<ul style="list-style-type: none"> • Fully open the primary air knob (a). • Adjust the secondary air knob to a semi-open position (b). • Use the locking screw to secure the position of the secondary air knob (c).

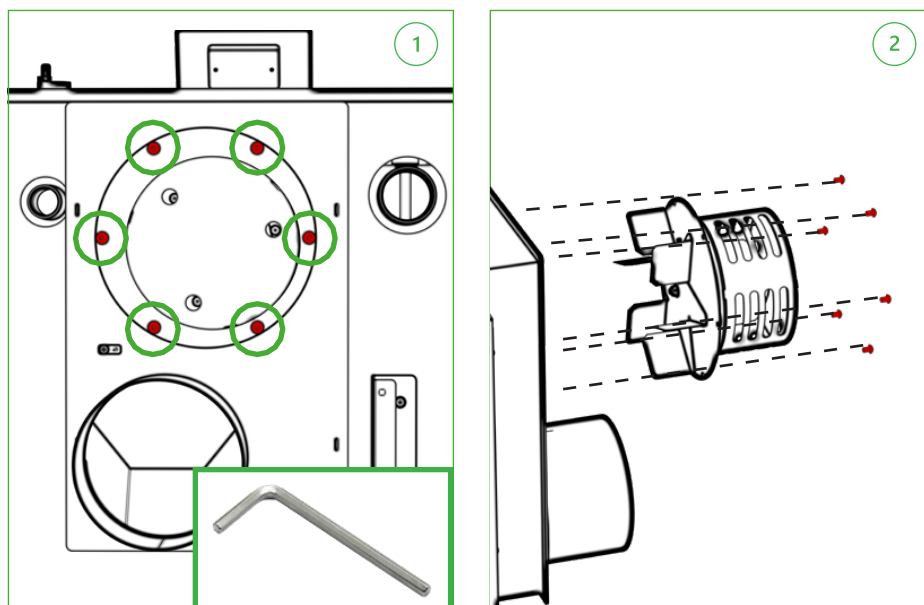
6. Boiler Maintenance and Cleaning:

1. Always wear protective gloves during maintenance operations.
2. Dispose of residual ashes after burning solid fuels in the boiler in sealable metal containers.
3. Thanks to the efficient wood gasification principle, weekly cleaning of the upper and lower combustion chambers is sufficient. Cleaning the exhaust gas tubes at the back of the boiler is only necessary after the heating season, so at least once a year.
4. Check and clean, if necessary, the fan blades and fan housing.
5. Before operating the boiler, we recommend operating the smoke exhaust pipe cleaning lever multiple times to ensure optimal operation.

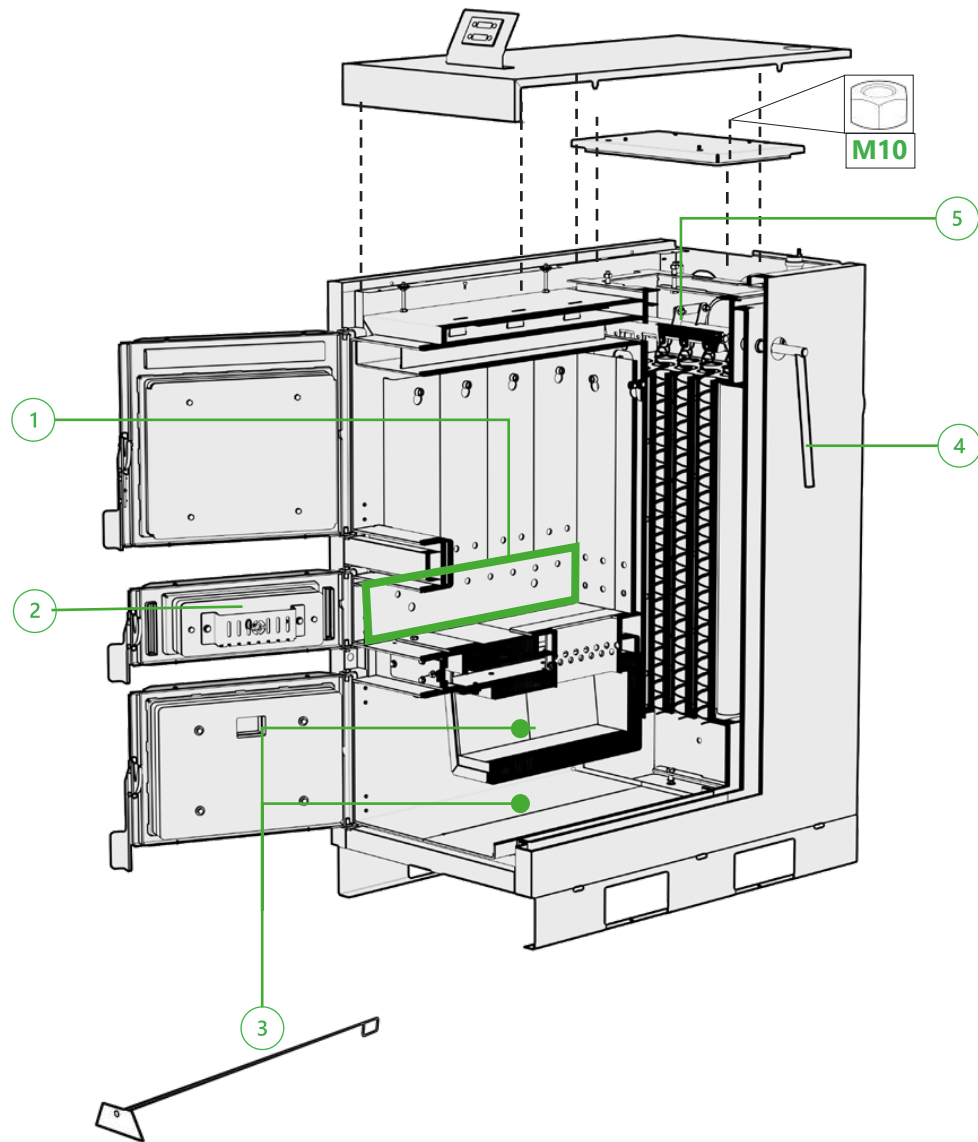


We strongly recommend the use of protective gloves.

Cleaning of the intake fan

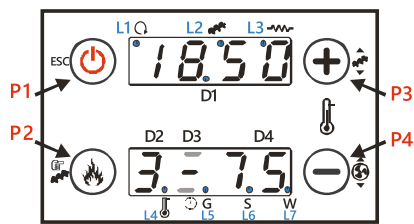


Remove the combustion fan by loosening the 6 internal hexagon screws ISO 7380 - M6 x 8.



1	Before each fire ignition
Before each ignition, it is necessary to clean the wood loading chamber from ashes. The primary air channels must always be free from any residue. Use the provided cleaning tool.	
2	Before each ignition
Before each ignition, it is necessary to check that the primary air holes on the central door are free from any residue.	
3	Before each ignition
Before each ignition, it is necessary to clean the main combustion chamber from ashes. Use the provided cleaning tool.	
4	Before reloading the wood / Before ignition
To clean the exhaust gas channels, it is necessary to move the lever several times.	
5	At least once a year
<p>Cleaning the area above the heat exchange tubes with turbulators.</p> <p>a - Turn off the boiler and disconnect it from the power. b - Remove the top cover. c - Open the exhaust gas chamber by removing the 2 M10 nuts. d - Remove dust and ashes from the exhaust gas chamber.</p>	

Control Panel: Usage and Functions



Buttons	Click	Press and hold
P1	Visualizations / Exit menu	Restore ignition / completion of combustion / unlock
P2	Adjust the combustion power	
P3	Adjust the thermostat (+) / Increase the data	
P4	Adjust the thermostat (-) / Decrease the data	Adjustment of combustion fan speed

Displayed Values

Display 1: Time, system status, error messages, menu, submenu, parameter value

Display 2: Power, parameter code

Display 3: Recipe

Display 4: Main temperature, parameter code

Led	Function	Led	Function
L1	LED On: Pump active	L5	G LED On: Daily programming
L2	LED On: Pellet auger in ON range (only for pellet stoves)	L6	S LED On: Weekly programming
L3	LED On: Igniter activated	L7	W LED On: Weekend programming
L4	LED On: Room thermostat temperature Remote control reached		

Error notifications

Er01	High Voltage Safety Error 1. Can also occur with the system turned off.
Er02	High Voltage Safety Error 2. Can only intervene when the combustion fan is active.
Er05	Completion due to high exhaust gas temperatures.
Er07	Encoder Error. The error can occur due to a lack of signal from the encoder.
Er08	Sensor Error. The error can occur due to issues with the speed adjustment.
Er11	Clock Error. The error occurs due to problems with the internal clock.
Er15	Completion due to a power interruption of more than 50 minutes.
Er44	Door Open Error.
Service	Service Error. The planned operating time (Parameter T66) has been reached. Perform a service intervention.

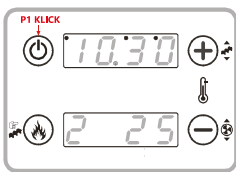
Operating Status Display

Condition	Code	Condition	Code	Condition	Code
Off	-	Variable ignition	Zu 4	Safety	SAF
Check	ChEc	Stabilization	Zu 5	Completion	AUS
Ignition - Preheating	Zu 1	Operating mode	-	Lock	Alt
Ignition - Preparation	Zu 2	Modulation	Mod	Re-ignition	rEc
Ignition - Stable	Zu 3	Standby	Stby		

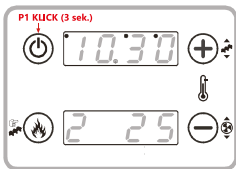
Notifications

Description	Code
Anomalies during the probe check in the verification phase	Sond
Ambient temperature above 50°C	Hi
Planned operating hours (Parameter T67) have been reached	CLr
Door open	Door
The message is displayed if the system is turned off during ignition (after filling) and is not turned off manually: the system is stopped only when it enters operational mode.	OFF dEL
Regular cleaning in progress.	PCLr
No communication between the motherboard and the keyboard.	-

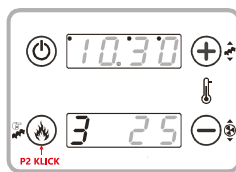
User Menu 1



UF = Combustion Fan Speed [RPM];
tF = Exhaust Gas Temperature [°C];
tP = Hot Water Temperature / Storage Tank Temperature [°C];
tE = External Temperature [°C];
St = Remaining Time Before the System Displays „Service“ Message [h];
St2 = Remaining Time Until System Cleaning is Performed [h];

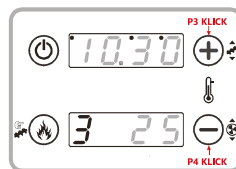


- Ignition activation: Press and hold button **P1** for an extended period.
- Combustion activation: Press and hold button **P1** for an extended period.
- Unlocking: Press and hold button **P1** for an extended period.



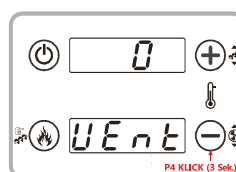
Combustion power adjustment

Press button **P2**: Display **D2** starts flashing.
 With another click on the same button, the power adjustment changes.
 Example: 1-2-3-4-5-A (**A** stands for automatic combustion).
 After 5 seconds, the new value is stored, and the display shows the updated value.



Thermostat setting

1. Press button **P3** or **P4**: Display **D3** starts flashing.
2. Use successive clicks on buttons **P3/P4** to increase or decrease the temperature set on the thermostat.
3. After 5 seconds, the new value is stored, and the display returns to the normal view.



Combustion fan correction

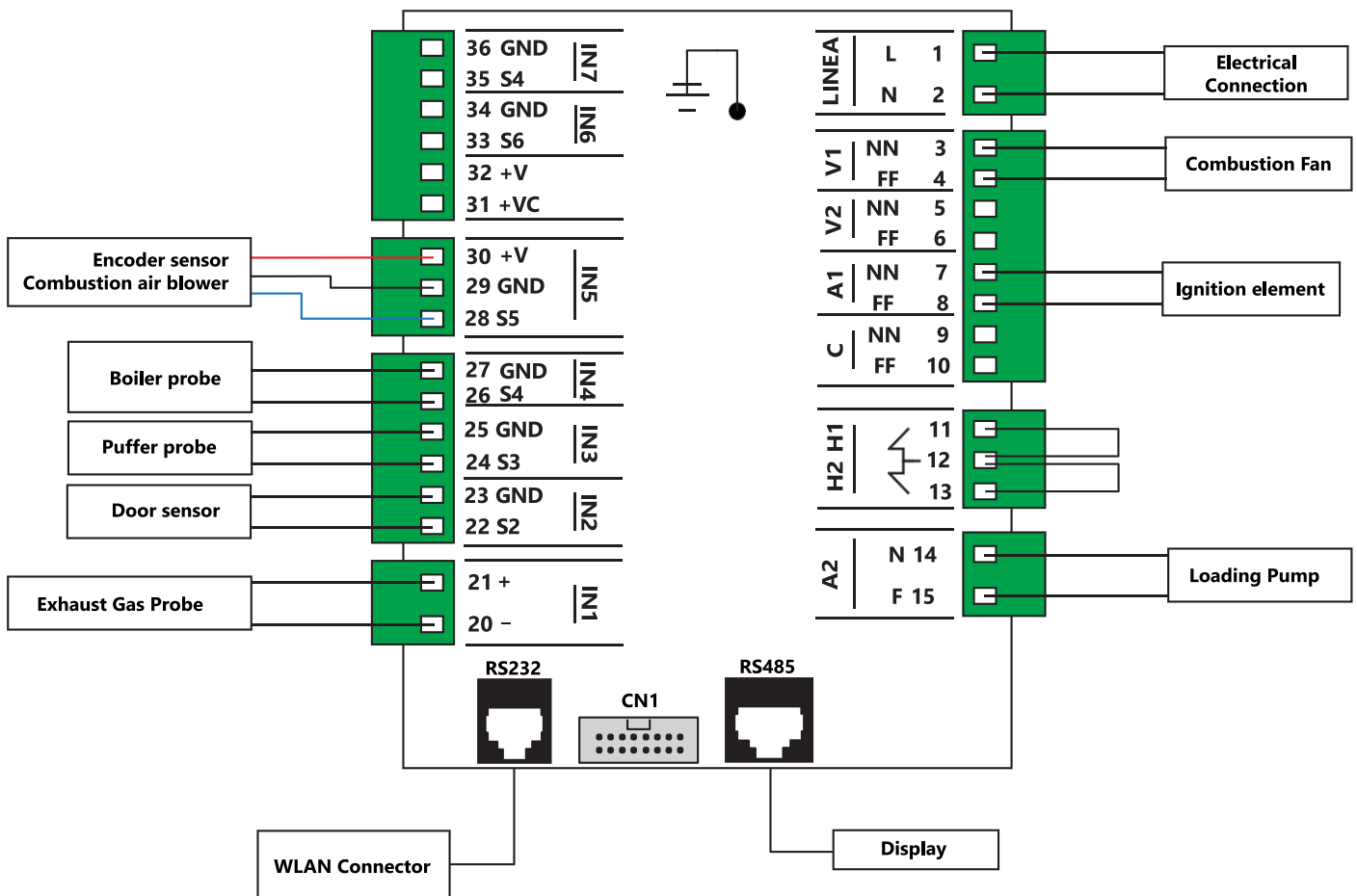
1. Activate this function by pressing and holding button **P4** (this needs to be done twice to change the mode).
2. The lower display shows „UEnt“ while the upper display shows the current value.
3. Use buttons **P3/P4** to increase or decrease the value. The default value is 0.
4. After 5 seconds, the new value is automatically saved, and the display returns to the normal view.

User Menu 2

To access the menu, simultaneously hold down buttons **P2** and **P4** for a little longer.

Fuel (FuEL)	In this menu, you can change the system from wood (Wood) to pellet (Pell). (Not possible with PYROMAX)
Thermostats (tErM)	boil / Boiler / In this menu, you can change the boiler thermostat value. dHU / DHW / In this menu, you can change the hot water thermostat value. PuFF / Buffer / In this menu, you can change the buffer tank value.
Clock (oroL)	In this menu, you can set the time and date. The upper display shows the hours and minutes, while the lower display shows the day of the week. To make the setting, press the P2 button. The selected value (hours, minutes, days) starts flashing. Use the P3/P4 buttons to adjust the value. Pressing P2 allows you to move on to editing other parameters. To save the setting, press P2 again.
Technical Menu (TPAr)	Using this menu, you can access the technical menu with the code „0000“.

Electrical connections



Electrical connections

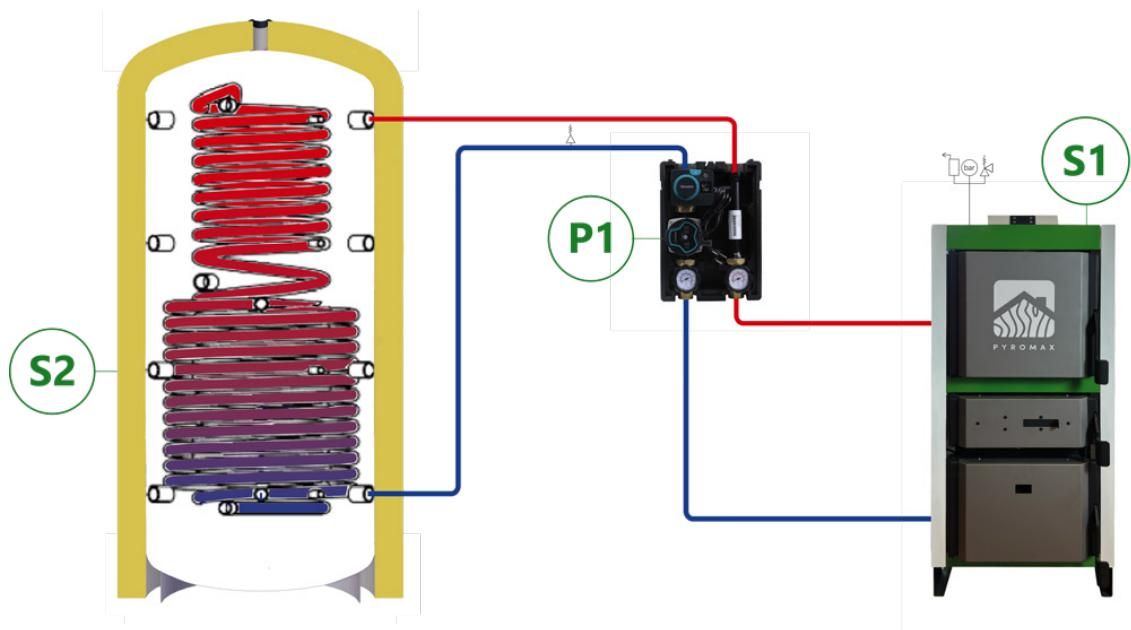
PIN		Function	Technical specifications
1	L	Mains power supply	230V AC \pm 10% 50/60 Hz
2	N		
3	NN	Combustion air blower	Triac control 0.9 A max
4	FF		
5	NN	Configurable output V2 (Configuration parameters: P44)	Triac control 0.9 A max
6	FF		
7	NN	Ignition element	Triac control 1.6 A max
8	FF		
9	NN	Pellet auger motor (only for pellet stoves)	Triac control 0.9 A max
10	FF		
11		Safety thermostat input AT1	Normally closed contact On/Off Bridge if not used
12			
12		Safety pressure switch input AT2	Normally closed contact On/Off Bridge if not used
13			
14	N	Charging pump	Relay output 3 A max
15	F		
16 *	GND	Configurable output PWM1/DAC1 (Configuration parameters: P140 and P142)	Signal 0-10 V, 10 mA, Frequency 1 kHz
17 *	PW1		
16 *	GND	Configurable output PWM2/DAC2 (Configuration parameters: P141 and P143)	Signal 0-10 V, 10 mA, Frequency 1 kHz
18 *	PW2		
20	Grün -	Exhaust gas sensor	Thermocouple K: 500 or 1200 °C Max
21	Rot +		
22	SEG	Door sensor input IN2 (Configuration parameter: P77)	Analog input (NTC 10K probe) or digital
23	GND		
24	SEG	Buffer sensor input IN3 (Configuration parameter: P75)	Analog input (NTC 10K probe) or digital
25	GND		
26		Boiler sensor	NTC 10K @25 °C: 120 °C Max
27			
28	SEG	Encoder sensor combustion air blower	TTL signal 0 / 5 V
29	GND		
30	+V		
31	+Vc	+10÷14 Volt	-
32	+V	+5 Volt	-
33	SEG	Configurable input IN6 (Configuration parameter: P78)	Analog input or digital
34	GND		
35	SEG	Configurable input IN7 (Configuration parameter: P82)	Analog input or digital
36	GND		
RS232		RS232 connection Wlan connector	Connection to Programmer, KeyPro, Modem, PC
RS485		RS485 connection Display	Connection to LCD keyboard, WLAN module
CN1		Flat cable	Connection to CP keyboard

*Available only on boards that provide hardware PWM outputs.

Initial configurations

It is recommended to first select the hydraulic system via parameter P26 in the settings menu in the system menu, and then proceed with the configuration of the configurable output V2 (parameter P44) and the configurable inputs. Finally, you should set P25 to select the type of combustion air blower (with or without encoder) and P81 to select the type of pellet auger (with or without encoder). Also, set parameters P111 and P112 for the use of the refill function.

Configuration 4 (P26=4)



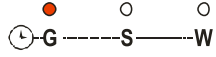
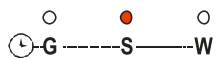
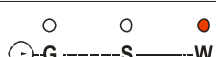
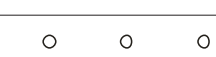
Buffer charging

When the boiler water temperature is higher than the pump activation thermostat **Th19**, the system heats the buffer water when there is a temperature difference between the two sensors (boiler water temperature minus buffer temperature, which is greater than the differential thermostat **Th57**). For safety reasons, pump P1 is activated when the boiler water temperature exceeds the value of thermostat **Th21**. Pump P2 is activated when thermostat **Th59** is exceeded.

Example: **Th18** = 5 °C, **Th19** = 40 °C, **Th21** = 70 °C, **Th57** = 5 °C, **Th59** = 40 °C

Temperature sensor S1	Difference	Pump P1	Pump P2
T < 5°C		ON	OFF
T < 40°C		OFF	OFF
T ≥ 40°C	< 5°C	OFF	ON
	≥ 5°C	ON	ON
T ≥ 70°C		ON	ON

Menu for CP series panels

Chrono (Cron)	<p>Menu for programming the system's on/off times. It consists of two sub-menus:</p> <p>Chronothermostat Activation Menu This menu allows the activation and selection of the operating mode of the chronothermostat. The text ,ModE' appears on the display (only with CP110 keyboard).</p>	
	Mode	Led
	Daily program	
	Weekly program	
	Weekend program	
	Disable all programs	
	<p>Time schedule programming menu The text ,ProG' appears on the display. It includes 3 sub-menus corresponding to the 3 allowed programming modes:</p> <p>Daily: Allows the setting of 3 programs for each individual day of the week. Weekly: Allows the setting of 3 identical programs per day for all days of the week. Weekend: Allows the setting of 3 programs per day, with the program from Monday to Friday being different from that on Saturday and Sunday.</p>	
	Presentations	Display
	Daily mode: Weekday	M o
	Weekly mode: Monday to Sunday	M S
Weekend mode: Monday to Friday - Saturday to Sunday	M F S S	
The lower display of display D2 is active for the turn-on time	---- 1, M o	
The upper display of display D2 is active for the turn-off time	---- 1, M o	
<p>Instructions For each program, you need to set the on and off times. Display description.</p>		
Description	Display	
1) Scroll to the desired sub-menu using the P2/P4 buttons and press the P3 button	G i o r n	
2) Press the P2/P4 buttons to select one of the three available programmings	---- 1, M o	
3) Press the P1 button for 3 seconds	00.00	
4) Select the turn-on time	1, M o	
5) Press the P3 button to enter the editing mode: The selected value (hours or minutes) will blink. Press the P3 button to switch between hours and minutes, and use the P2/P4 buttons to change the value.	01.00 1, M o	

	6) Press the P3 button to save the set value		2 1 . 3 0 1, M o	
	7) Select the turn-off time using the P2 button and repeat the procedure from step 5 for the previously set time		0 0 . 0 0 1' M o	
	<p>For each programming period, minutes can be adjusted in fifteen-minute intervals (e.g., 20:00, 20:15, 20:45). Only when setting the hour value to 23, you can increase the minutes from 45 to 59 to allow a midnight start.</p> <p>Midnight programming: For one programming period on a weekday, set the turn-off time to 23:59. For the next programming period on the next weekday, set the turn-on time to 00:00.</p> <p>Example</p>			
	Programming Clock Monday			
	ON	2 2 . 0 0 1, M o	2 3 . 5 9 1' M o	OFF
	Programming Clock Tuesday			
ON	0 0 . 0 0 1, T u	0 7 . 0 0 1' T u	OFF	

Door sensor

In case of a door opening, the message „Port“ appears on the display. The combustion air blower (if the system is not turned off or in standby mode) will be set to the speed **P22**. If the door remains open for more than **T92** seconds, the system is blocked with the error code **Er44**. If the jumper contact is not used, the corresponding pins refer to it.

Counter menu (TP11)

Counter	
Code	Description
<i>CP</i>	
Co04	Number of ignition attempts
Co05	Number of failed starts
Co03	Hours of heat generated by the stove in normal, modulation, and safety state
rES	Reset all counters: Resets all counters to zero
rSUC	Maintenance 1 system reset menu



ROBIN WOOD

We are constantly improving and optimizing our products

With a built-in WLAN module and a mobile app, you can access the boiler at any time from your smartphone and customize it according to your needs.



Manage your biomass heating system anywhere, anytime



ENJOY YOUR SMART FIBRE



ENJOY YOUR SMART FIRE

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