

# Ignis

Solid fuel boiler-stove



## User manual

### Maintenance and installation

## Table of content

Safety provisions	3
1. Introduction	4
1.1. General information	4
1.2. Standards and regulations	4
2. Technical parameters	5
3. Construction	6
3.1. Boiler-stove components	6
3.2. Boiler-stove	7
3.3. Boiler-stove set	7
4. Boiler-stove installation	8
4.1. General information	8
4.2. Boiler-stove location and position	8
4.3. Connecting the boiler-stove to the chimney	9
4.4. Connecting the boiler-stove to the central heating system	9
4.5. Recommended connection diagrams	10
4.6. Changing the door direction	11
4.7. Adjustment of the primary air supply valve	12
4.8. Adjusting the secondary air supply valve	13
5. Using the boiler	13
5.1. General information and safety	13
5.2. Boiler-stove fuel	14
5.3. Ignition	15
5.4. Boiler-stove operation	15
5.5. Maintenance	16
6. Warranty conditions	17
7. Efficiency and emissions	17
8. Disposal of the boiler	

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## Safety provisions



**During the use of the boiler, its individual parts: chimney, door, individual points of the body – can heat up and cause burns if touched.**



**Do not allow children to touch or use the boiler without adult supervision.**



**The boiler can be operated by a capable adult who has carefully familiarized himself with this instruction.**



**Only a qualified specialist can install the boiler and connect it to the heating and electrical systems.**



**If you suspect that the boiler has malfunctioned, please contact the organization that installed the boiler or the manufacturer's representative. Do not under any circumstances use a malfunctioning boiler.**



**Improperly connected and used boiler can cause injury or death.**

## 1. Introduction

### 1.1 General information

Read this instruction carefully before connecting the boiler-stove to the heating system. Check whether all the parts belonging to the set are present, whether all boiler-stove components and equipment are working properly. Boilers-stoves are designed for heating private residential houses and commercial and auxiliary premises. Boilers-stoves belong to the so-called low-temperature boilers category, i.e. the temperature of the heat carrier (water) cannot exceed 90 °C, and the maximum operating pressure – 1.5 bar.

The boiler-stove heat exchanger is characterized by exceptional durability and low requirements for chimney draft and easy maintenance. The main control elements consist of an air supply valve and a smoke distribution damper, which directs the hot air supply through the heat exchanger (when closed) and directs it directly to the chimney (when opened). The increased fuel loading volume and the enlarged loading opening allow significantly larger firewood to be loaded, which ensures a very long burning time.

The manufacturer reserves the right to make minor changes that do not significantly affect the quality of the combustion process and the operation of the boiler.

### 1.2 Standards and regulations

The boiler-stove must be installed and operated in compliance with the legal requirements of the country to which it is supplied. It must be installed in accordance with the requirements of the maintenance and installation instructions. Otherwise, the manufacturer assumes no responsibility and does not guarantee repair for any defects.

## 2. Technical parameters

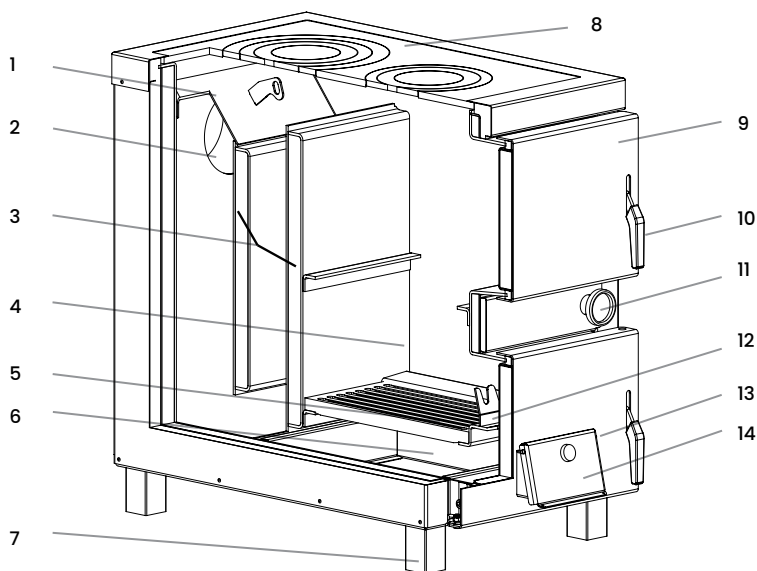
Models and power output		M 10 kW	D 15 kW
Heated area	Max m <sup>2</sup>	100	150
Combustion chamber load	l/dm <sup>3</sup>	70	90
Combustion chamber depth	mm	300	400
Combustion chamber opening size	cm	34x26	34x26
Heat exchanger area	m <sup>2</sup>	1,2	1,8
Nymber of vertical heat exchangers	pcs	1	2
Volume of water in the boiler	l	32	42
Weight	kg	130	190
Heating efficiency	%	76	78
Chimney inner-outer diameter	mm	130/140	150/160

Hydraulic connections size	G 1 1/4 inch
Lowest operating temperature	60° C
Highest operating temperature	90° C
Highest operating pressure	1,5 bar
Required draft in the chimney	15-20 Pa

## 3. Construction

### 3.1 Boiler-stove components



- 1. Smoke distribution valve
- 2. Chimney
- 3. Heat exchanger
- 4. Combustion chamber
- 5. Cast iron grates
- 6. Ashtray
- 7. Legs

- 8. Cast iron hob
- 9. Fuel loading door
- 10. Door handle
- 11. Thermometer
- 12. Amber ridge
- 13. Service door
- 14. Air supply valve

## 3. Construction

### 3.2 Boiler-stove

The boiler-stove consists of three main zones. In the upper part, there is a cast-iron hob (8) with one or two sets of rings, depending on the Ignis model. One or two vertical heat exchangers (3) are installed below the cast iron hob. The fuel loading door (9) is used when it is necessary to refill the boiler-stove with fuel. In the area of the service door (13) there are cast iron grates (5), above them the combustion chamber (4) and below the ash tray (6). The combustion chamber is rectangular in shape, has a large volume and ensures long burning. The lower door area has two compartments: the upper one for lighting the fuel and the lower one for the ashtray. An air supply valve (14) is installed in the lower door, which is controlled mechanically by turning the regulator. The internal heat exchanger body of the boiler-stove is made of bent and welded heat-resistant steel sheets, and the finish is made of powder-coated sheets. Under the boiler-stove finish is an insulating layer of glass wool, which protects against heat loss through the boiler's outer walls. The double doors are sealed with heat-insulating material and painted with heat-resistant paint. The gases produced during combustion are removed through the chimney pipe (2). The smoke distribution valve (1) is used to direct the gases produced during combustion directly into the chimney or through the heat exchanger.

### 3.3 Boiler-stove set

1. Ashtray
2. Instruction
3. Thermometer
4. Transition sleeve

## 4. Boiler installation

### 4.1 General information

Boilers–stoves **Ignis** are delivered ready for work. Before connecting the boiler–stove to the heating system, read this manual carefully and check that all components and equipment of the boiler–stove are working properly. **Ignis** boilers–stoves are delivered to the buyer fully assembled, but the thermometer is not installed in order to avoid damage during transportation. It comes packed in an ash box.

### 4.2 Location and position of the boiler–stove

The boiler–stove must stand on a hard, smooth and non-flammable dry surface. It is forbidden to place the boiler near flammable materials. The minimum safe distance (from combustible materials) for **Ignis** boilers and stoves is 50 cm.

Provide good access to the boiler for service personnel. Also ensure good access from all sides of the boiler so that nothing interferes with loading fuel and cleaning the boiler, it is convenient to access the ash collector, liner, connections and chimney.

The boiler room must be equipped with adequate air supply and smoke extraction ventilation. Minimal active ventilation channel's cross-sectional dimensions are specified in regulatory acts for the country which boiler is operated in.

To prevent a decrease in draft and uncontrolled smoke emission, do not install mechanical smoke removal equipment (smoke extractors) in the boiler room.



## 4. Boiler installation

### 4.3 Connecting the boiler-stove to the chimney

The chimney must be installed to meet the requirements of the country where it is installed. The dimensions of the chimney insert recommended by the boiler manufacturer:

- Ignis “M” – chimney outlet diameter – 130 mm. The insert is installed inside the chimney.
- Ignis “D” – chimney outlet diameter – 150 mm. The insert is installed inside the chimney.

The boiler flue pipe must be connected to the flue itself with a rigid steel connection of suitable cross-section, shape and thickness. The connection of the solid fuel boiler to the chimney must be properly insulated to prevent burns.

### 4.4 Connecting the boiler-stove to the central heating system



**Delegate the boiler-stove connection work to properly qualified specialists.**

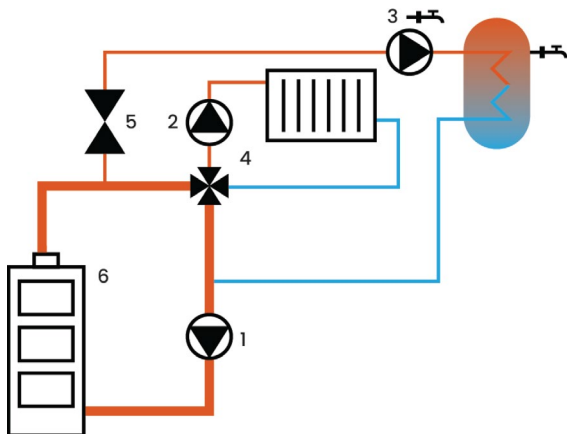
In order to extend the service life of the boiler-stove and to ensure adequate comfort of use, it is necessary to follow such an installation scheme that ensures the maintenance of the working temperature of the boiler not below 60°C. With the help of a specialist, make sure that the condition of the boiler, the tightness of the plumbing connections and the flue and the components are working properly. The closed heating system must have a thermal expansion compensation vessel of adequate capacity (at least 10% of the total liquid volume in the system). The use of safety valves or valves that limit the flow in a closed system is prohibited. Recommended connection schemes are presented in subsection 4.5.

## 4. Boiler installation

### 4.5 Recommended connection diagrams

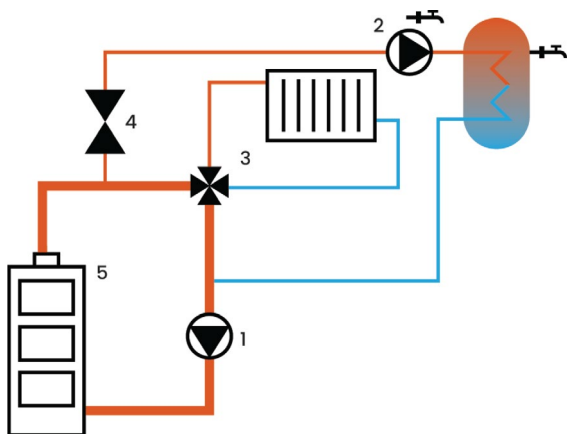
With four-way valve

1. Small perimeter pump
2. Big perimeter pump
3. Boiler pump
4. Four-way valve
5. Reverse valve
6. Boiler



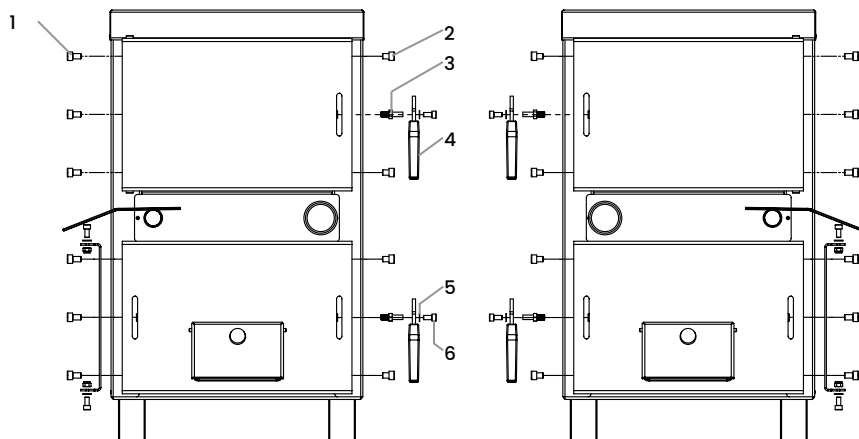
With 4-way valve for older (gravity) systems:

1. Small perimeter pump
2. Boiler pump
3. Four-way valve
4. Reverse valve
5. Boiler



## 4. Boiler installation

### 4.6. Changing the door direction



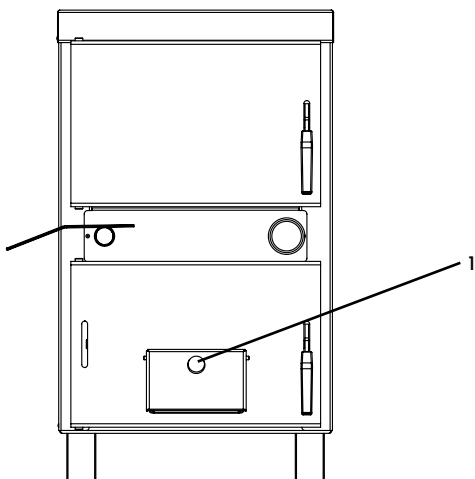
- 1. Screw DIN 912 M10x16
- 2. Screw DIN 912 M10x12
- 3. Eccentric M10

- 4. Door handle
- 5. Spring washer
- 6. Screw DIN 912 M8x14

The direction of the upper door is changed by turning the door together with the hinge (hinges) away from the boiler body and screwing it on the opposite side of the boiler. The door handle is unscrewed, turned over and screwed back. The direction of the lower door is changed by turning the door away from the hinge. The hinge is unscrewed from the boiler body and screwed on the opposite side of the boiler. The door is screwed to the hinge, and the door handle is unscrewed from the door and screwed back to the opposite side of the door.

## 4. Boiler installation

### 4.7 Adjustment of the primary air supply valve



The air valve is adjusted mechanically by turning the knob (1) and is set according to the required amount of air. Turning the knob clockwise opens the air valve, counter-clockwise it closes. It is possible to install a traction regulator. The draft regulator automatically controls the air valve in front of the lower door by chain. During combustion, when the temperature rises, the damper is closed, and when it falls, it is opened. Check the operation of the shutter – it must move freely.

## 5. Using the boiler

### 5.1 General information and safety

**Use the boiler–stove safely and follow the basic safety and operating rules.**

- Check the operation of the safety valve (max. 1.5 bar) and open the shut-off valves between the heating boiler and the heating system.
- Check the water pressure in the system.
- The heating system must be filled with water and bled.
- Do not use flammable liquids such as gasoline, paint thinners etc. when starting solid fuel.
- Do not burn plastic, rubber and other air-polluting waste.
- The smoke extraction system must be reliably connected and tight.
- Unmaintained chimney, insufficient draft can cause Carbon monoxide poisoning.
- Carry out maintenance work on the boiler only after it has cooled down.

### 5.2 Boiler–stove fuel

**Wood.** The boiler–stove will reach the power specified in the technical parameter table if you burn wood with a moisture content of no more than 20%. The burning duration depends on the amount of fuel charged, its quality, outdoor and indoor temperature, the building's thermal resistance, the working capacity of the boiler and the quality of compliance with the recommendations in the user manual (connection and adjustment of the boiler, heating water flow and temperature maintenance).

**Coal.** A mixture of black coal: medium and fine coal (50/50%).

## 5. Using the boiler

### 5.3 Ignition

- 1) Check the water pressure and tightness of the boiler and system.
  - 2) Check the draft and the condition of the smoke channels.
  - 3) Clean the boiler ash grates, smoke channels and internal side walls of the boiler-stove.
  - 4) Put fuel through the upper door.
  - 5) Fully open the smoke distribution valve.
  - 6) Fueling is done through the bottom door. After lighting the fuel the door must be closed.
  - 7) After the fuel is ignited, the smoke distribution valve is closed.
  - 8) If the boiler-stove works too intensively, the power can be reduced by adding an air supply valve.
  - 8) The recommended operating temperature of the boiler is 80–85 °C.
  - 9) If the working temperature of the boiler is exceeded, it must be adjusted with the help of the air supply valve.
- If a specialist installs the boiler for the first time, he must familiarize the user with the instructions for using the boiler.



**Grates must be placed correctly (“VVVVV”). When stacked in reverse, wood fractions and ash fall, clogging the gaps. In this case, the boiler loses its traction and power, the grates fold.**

## 5. Using the boiler

### 5.4 Boiler–stove operation

- 1) Depending on the heat demand and burning intensity, refuel periodically.
- 2) When leaving the boiler–stove to operate during the night, the air supply valve can be closed – thus reducing the boiler’s power. However, if the air supply is reduced too much, soot begins to accumulate on the walls of the boiler–stove and the efficiency of the boiler decreases.
- 3) The door of the boiler–stove must be closed during the entire operation.

### 5.5 Boiler–stove maintenance

#### **Ashtray.**

Clean the ashtray as needed, depending on the type of fuel used. Overfull ashtray prevents the proper combustion of fuel – improper air distribution occurs, so the fuel burns unevenly along the entire length of the boiler.

#### **Cleaning.**

It is recommended that all combustion waste and slag be cleaned before each new ignition. The heat exchanger is easily cleaned by removing the coils. The combustion chamber is cleaned through the upper door or through the removed rings. Cleaning of cast iron grates and ashtray is done by pulling out the components through the bottom door.

#### **Recommendations.**

- The tar layer formed inside the boiler–stove can be reduced by burning aspen or black alder firewood at maximum temperature.
- Periodically inspect the boiler–stove and the heating system.

## 6. Warranty conditions

When selling a boiler-stove, the seller must familiarize the buyer with the conditions of warranty application.

1. The manufacturer provides:

- 4-year warranty for the tightness of the boiler-stove heat exchanger.

- 1 year warranty for the included parts.

2. The boiler-stove installation scheme must ensure a return water temperature of at least 60°C.

3. Boiler-stove installation must be performed only by a qualified specialist.

4. During the warranty period, the manufacturer undertakes to carry out free of charge elimination of malfunctions, if they occurred due to the fault of the manufacturer.

5. The warranty does not apply to:

- Failure to submit purchase documents.

- Violation of installation, operating instructions or warranty conditions requirements.

- In case of mechanical damage to the boiler-stove.

- After determining that the boiler has been repaired by an outsider.

- In case of natural disasters.

6. Defects detected during the warranty period will be eliminated within 21 working days from the date of the complaint.

7. Costs related to service calls and repairs, if it is determined that the warranty conditions have been violated, are covered by the buyer.



## 7. Efficiency and emissions

Ecodesign 2015/1189

IGNIS M								
Manual ignition - the boiler should be used with a hot water tank of at least x* liters								
Condensing boiler [no]			Solid fuel cogeneration boiler [no]		Combined boiler [no]			
Fuel	Most suitable fuel	Other suitable fuel	$\eta_s$ [x%]:	Seasonal space heating emissions				
				SP	GOC	CM	NO <sub>x</sub>	
				[x]mg/m³				
Log wood, humidity ≤ 25 %	Yes	No	76±3	50±10	2l±5	628±10%	292±5%	
Characteristics when burning only the most suitable fuel								
Useful heat release				Heat utility				
Parameter	Symbol	Value	Unit		Parameter	Symbol	Value	Unit
At nominal heat output	P <sub>n</sub>	8,l	kW		At nominal heat output	$\eta_n$	78,6	%
At [30%/50%] rated heat uotput, if applicable	P <sub>p</sub>	Non applicable.	kW		At [30%/50%] rated heat output, if applicable	$\eta_p$	Non applica-ble	%
List of equivalent models				Ignis D				

SP – solid particles, GOC – Gaseous organic compounds, CM – carbon monoxide  
 NO<sub>x</sub> – nitrogen oxides,  $\eta_s$  – Seasonal energy consumption efficiency for space heating  
 (Efficiency factor – 3%)

$\eta_n$  – Seasonal energy consumption efficiency for space heating at maximum power

$\eta_p$  – Seasonal energy consumption efficiency for space heating at 30% capacity

X – Chamber volume =  $45 \times Pr \times (1 - 2.7/Pr)$  or 300 liters, whichever is greater, Pr is expressed in kilowatts (kW)

Y – Chamber volume =  $20 \times Pr$ , Pr is expressed in kilowatts (kW)

## 8. Disposal of the boiler



**The boiler must be disposed of in accordance with the requirements of the country where it is disposed of.**

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# Ignis

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