

# Three-Pass Solid Fuel Boiler with Fan Control TOP-W 25-50 KW

## INSTRUCTIONS for usage and maintenance



**termomont**



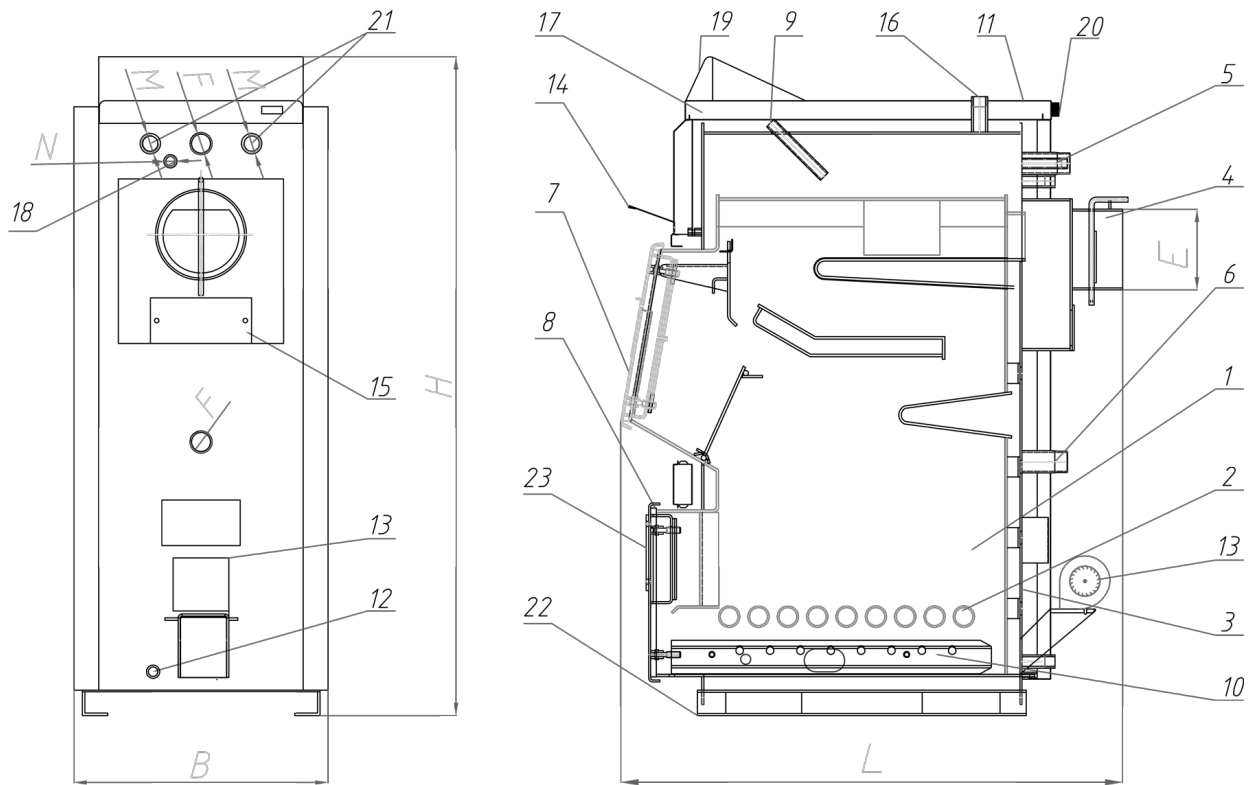
Prhovačka bb 22310 Šimanovci, Srbija  
Tel/Fax. +381 22 480063 +381 63 259422  
office@termomont.rs www.termomont.rs

October 20, 2022

# Contents

<b>1</b>	<b>Boiler design</b>	<b>2</b>
1.1	Dimensions . . . . .	2
1.2	Technical data chart according to EN 303-5 . . . . .	2
1.3	On Product . . . . .	3
<b>2</b>	<b>Recommendations for boiler shipment and storage</b>	<b>3</b>
2.1	Delivery form . . . . .	3
2.2	What's in the box . . . . .	3
<b>3</b>	<b>Boiler installation</b>	<b>3</b>
3.1	Boiler placement . . . . .	3
3.2	Chimney . . . . .	4
<b>4</b>	<b>Boiler installation</b>	<b>5</b>
4.1	Filling the system with water . . . . .	5
4.2	Connecting the boiler with a closed central heating system with circulation pump on the return line . . . . .	5
4.3	Connecting the boiler with a closed central heating system with circulation pump on the flow line . . . . .	7
<b>5</b>	<b>Boiler operation</b>	<b>8</b>
5.1	Firing with solid fuel . . . . .	8
5.2	Boiler cleaning and maintenance . . . . .	8
<b>6</b>	<b>Safety features</b>	<b>9</b>
6.1	Thermal safety in case of overheat (closed systems) . . . . .	9

# 1 Boiler design



Parts of the boiler: 1. Combustion chamber 2. Boiler tubes (hot-water) 3. Boiler (water) 4. Flue gas 5. Flow 6. Return 7. Upper door 8. Lower door 9. Water probe 10. Air flue grid 11. Insulation 12. Fill / Drain tap for the boiler (1/2" )/ Fill/Drain tap for the basement 13. Ventilator 14. Housing protection 15. Opening for cleaning (of the flue box) 16. Air vent connection 17. Housing 18. Connection for the probe of the thermal safety valve (exhaust temperature) 19. Control unit with display 20. Circulation pump connection 21. Connection of thermal safety valve (exhaust temperature) 22. Basement

## 1.1 Dimensions

Tip TOP-W	Weight (kg)	B (mm)	L (mm)	H (mm)	A (mm)	E (mm)	F (Φ)	G (mm)	J (mm)	K (mm)
25	260	505	1025	1285	915	160	5/4	105	500	1090
30	280	550	1025	1285	915	160	5/4	105	500	1090
35	305	600	1025	1285	915	160	5/4	105	500	1090
40	330	650	1025	1285	900	180	5/4	105	500	1090
50	355	650	1100	1285	900	180	5/4	105	500	1090

## 1.2 Technical data chart according to EN 303-5

Nominal power (KW)	25	30	35	40	50
Power range (KW)	20-25	25-30	30-35	35-40	40-50
Max working pressure (bar)	3	3	3	3	3
Chimney draught (Pa)	20	21	22	23	25
Water content (l)	97	102	112	117	122
Flue gas exit temperature (°C)	200	200	200	200	200
Heating chamber volume (dm <sup>3</sup> )	74	87	99	111	128
Regulation range (°C)	60-90	60-90	60-90	60-90	60-90
Max wood-log length (mm)	530	530	530	530	590
Min. temp. of the return line (°C)	60	60	60	60	60
Boiler class	4	4	4	4	4

### 1.3 On Product

- Prescribed fuel declaration for this boiler is firewood or coal only with caloric value  $> 15$  MJ/kg;
- Three-pass solid fuel boiler TOP-W is equipped with fan on the back side and simple regulation unit. It fulfills the requirements of the European norm EN 303/5 (Class 4).
- Following the norm demands, wall thickness of boiler plates in contact with water is 5 mm.
- Boiler is equipped with a thermometer, removable ash-tray and cleaning kit and also with a thermostat to prevent condensation (caused by low temperature of the return pipe).
- Upper door of the boiler is covered by fire-proof glass with a small opening for secondary air.
- Pressure test is done at 6 bar pressure. Maximum working pressure is 3 bar.

## 2 Recommendations for boiler shipment and storage

### 2.1 Delivery form

The boiler comes in three parts, boiler chamber, pellet storage and the boiler housing packed separately. Chamber is wrapped with plastic sheet, and upper door containing fireproof glass should have a small styrofoam protection sheet. The whole set is transported on wood pallet.

The boiler must always stand in its vertical position. The rotation of the boiler during the shipment or installation represents a serious risk and can lead to damaging the boiler. It is forbidden to stack boilers vertically one onto other.

The boiler can be stored only in closed rooms with no atmospheric influence. The humidity in the storing room also must not exceed the critical value of 80%, so as not to create any condensate. The temperature of the storing room must be in the range of  $\pm 40$  °C.

### 2.2 What's in the box

The following parts are supplied together with the boiler:

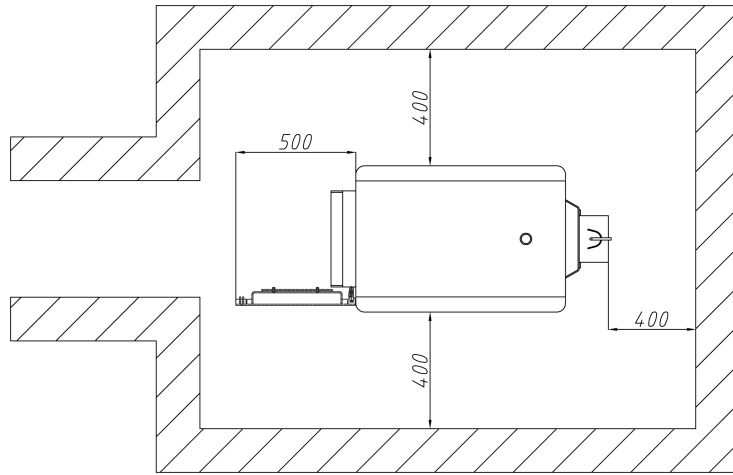
- Boiler thermometer
- Boiler ash-tray
- Cleaning kit
- Warranty note

Draught regulator and mixing valves are obligatory parts yet don't come delivered with the boiler.

## 3 Boiler installation

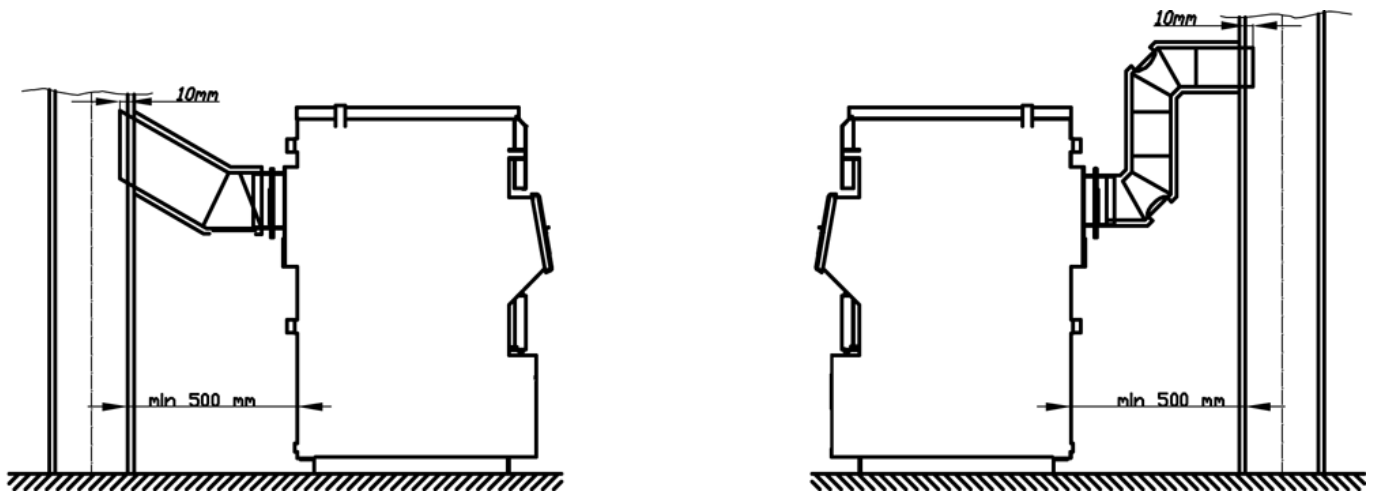
### 3.1 Boiler placement

The boiler room should have air-conditioning. The boiler should be mounted in the boiler room permitting access to all its parts as shown below:



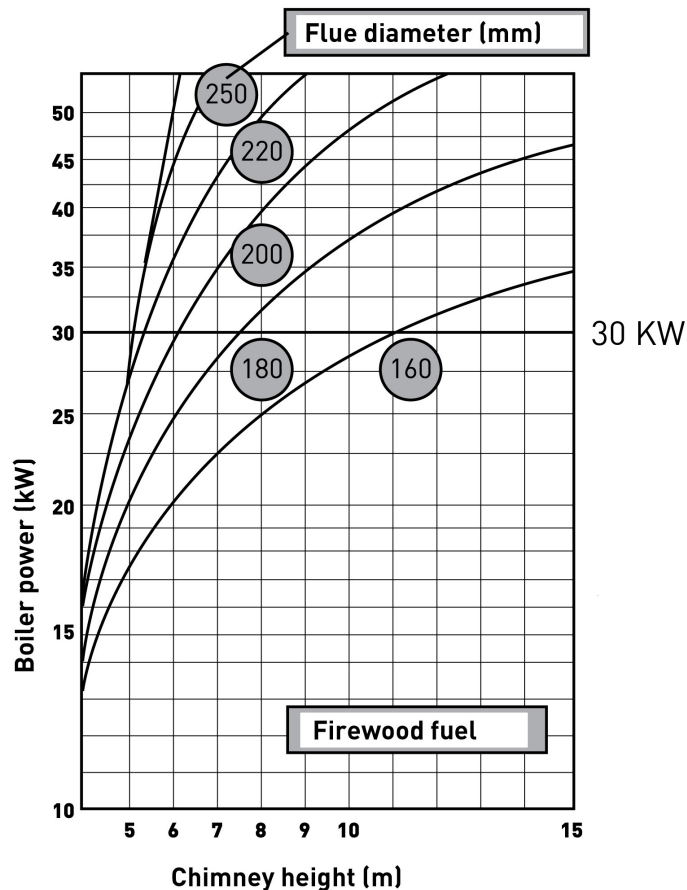
### 3.2 Chimney

Boiler connection to the chimney is shown in the figure:



Proper dimensioning of the chimney is a very important premise for optimum boiler performance. The purpose of the chimney is to take out the products of combustion but also to secure necessary air draught in the boiler. The graph shows how to choose the necessary height for the chimney as a function of chimney opening. Proper chimney insulation is very important and should be at least 50 mm thick.

Depending on the necessary draught of the boiler, the cross section and the height of the chimney are determined. Please advise technical material given by chimney producer. Minimum chimney height for wood boilers is 6 m. Round chimney made of stainless steel modules is recommended in order to keep the condensation influence low.



## 4 Boiler installation

### 4.1 Filling the system with water

Filling the system with water is to be done using the tap valve connection of the boiler.



When filling the system with water take care that no air remains in the boiler.

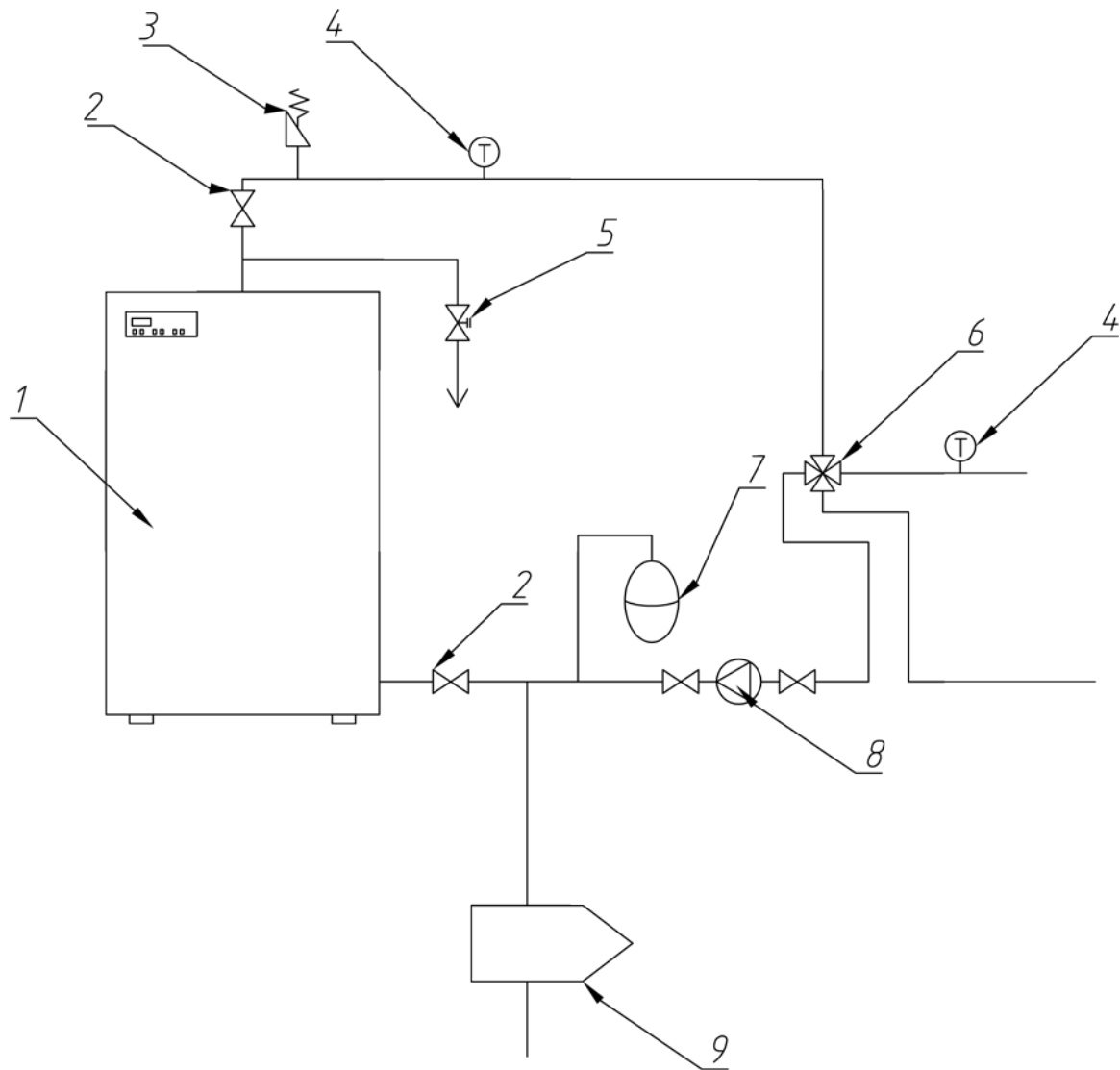
The filling process is done when no air is coming out through automatic air vent and pressure gauge is showing the value between 1,5 and 2,5 bar (closed systems). Air vent is to be set at the highest point of the (closed) central heating system. If the pressure is below 1,5 bar the filling process must be repeated.

For open systems, working pressure depends on the overall height of the system and the open expansion vessel (1 bar for each 10 m is an estimate).

After the filling process is done, it is obligatory to close the drain tap valve, close the water supply to the water-filling pipe and detach the water-filling pipe.

### 4.2 Connecting the boiler with a closed central heating system with circulation pump on the return line

Recommended connection scheme is depicted below:



1) Boiler 2) Boiler valve 3) Automatic air vent 4) Thermo-manometer 5) Safety valve 6) Mix valve 7) Expansion vessel 8) Circulation pump 9) Dirt catcher



The safety valve (with preset 2,5 bar threshold) should be mounted closed to the boiler (Position 5 at the image above).



It is essential to have a thermometer and a manometer installed to the system (Position 4 on upper scheme)



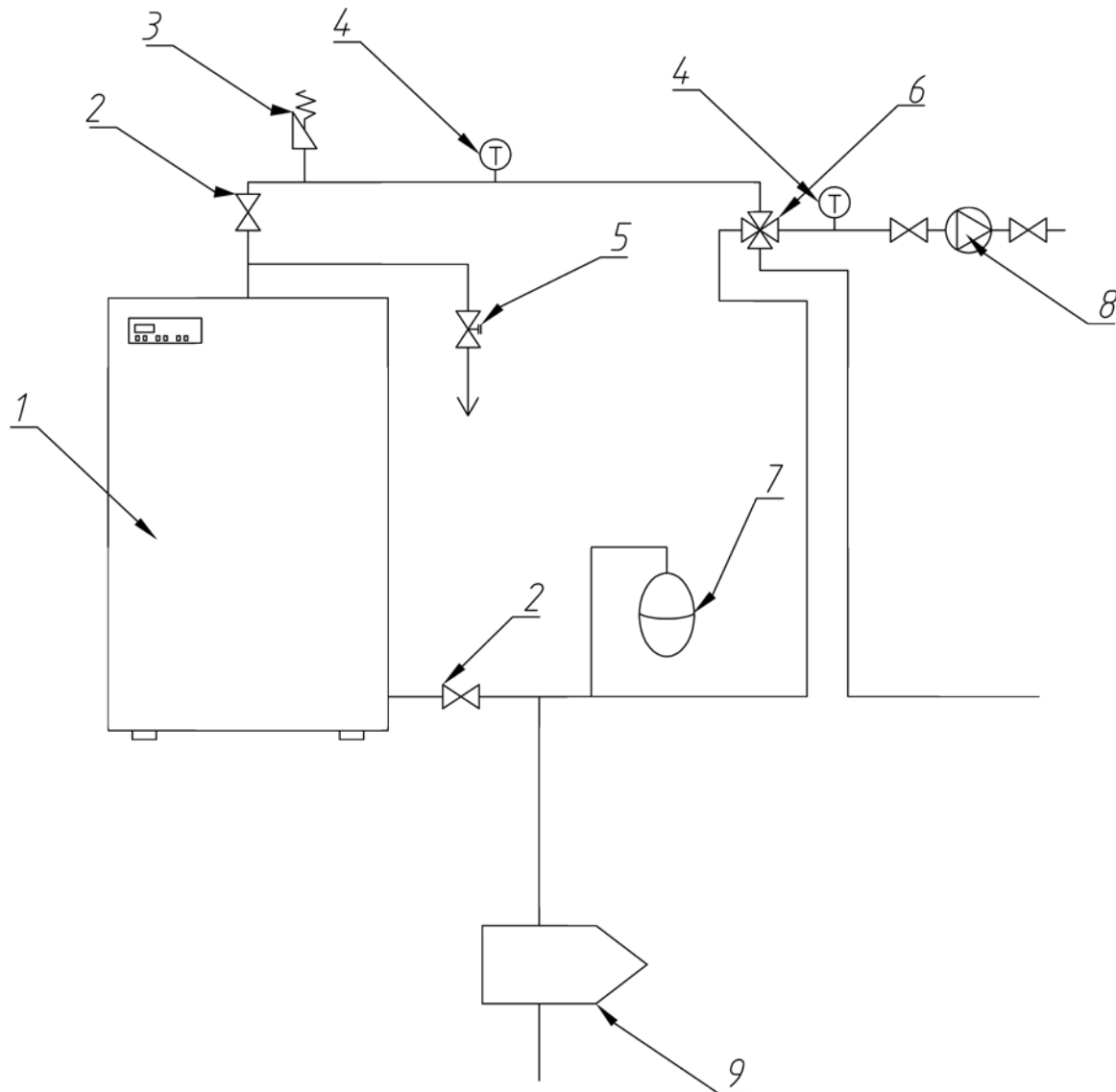
It is recommended to install a dirt catcher and also an anticondensation valve on the return line. (3-way mixing valve).



Closed expansion vessel (position 7) should be mounted close to the boiler. Vessel must be positioned so that its membrane is in horizontal position. The volume of the vessel is calculated using the ratio 1 KW : 1 l.

### 4.3 Connecting the boiler with a closed central heating system with circulation pump on the flow line

Recommended connection scheme is depicted below:



1) Boiler 2) Boiler valve 3) Automatic air vent 4) Thermo-manometer 5) Safety valve 6) Mix valve 7) Expansion vessel 8) Circulation pump 9) Dirt catcher



The safety valve (with preset 2,5 bar threshold) should be mounted closed to the boiler (Position 5 at the image above).



It is essential to have a thermometer and a manometer installed to the system (Position 4 on upper scheme)



It is recommended to install a dirt catcher and also an anticondensation valve on the return line. (3-way mixing valve).



Closed expansion vessel (position 7) should be mounted close to the boiler. Vessel must be positioned so that its membrane is in horizontal position. The volume of the vessel is calculated using the



ratio 1 KW :1 l.

## 5 Boiler operation

### 5.1 Firing with solid fuel

First putting into operation is performed exclusively by a skilled person. Before putting in operation please make sure that:

- boiler is connected on central heating installation properly
- boiler is connected on electric installation properly (when using pellet or oil burner)
- there is no air in the central heating installation and pressure is within range
- proper working cycle for circulation pump is chosen.

Heating by solid fuel (manual operation) can be performed in two ways:

1. Heating from above – put coal (or wood) over the fireplace pipes (“grid”) (no ash should be present). The draught regulator is at the maximum position. Using a tiny piece of wood or coal, light a fire on the top. When the fire begins to burn, draught regulator is set on desired temperature / position.
2. Heating from below – put small amount of solid fuel over the fireplace pipes (“grid”) (no ash should be present) and set up a fire. The draught regulator is at the maximum position. When the fire begins to burn, add larger amount of fuel and set draught regulator on desired temperature / position.

Make sure that lower boiler doors are closed during boiler use.

In case of an uncontrolled increase of pressure and temperature of the water in the boiler, due to various reasons (such as power failure causing interruption of the circulation pump operation, circulation pump defect, uncontrolled entry of air into system) close all air supply to the boiler or eventually take the fire out if the safety conditions allow that (there are no inflammable materials in the area). In case of power failure put the draught regulator in the zero position and the flap on the boiler chimney take-up in the closed position.

It is obligatory to pay special attention that the pressure inside the installation is within range. If the pressure is below the critical value, stop the boiler operation and refill the system when the boiler is cold.

The water hardness may not exceed the recommended value. If you heat the boiler using coal, depending on the kind of coal and quality of combustion, boiler is to be cleaned in detail at least every 30 days. Dirtier the boiler, the efficiency of the system is smaller.

It is not allowed to extinguish the fire in the boiler artificially, it is forbidden to sprinkle the water inside the heating chamber. After the heating season boiler should be cleaned from ash and soot and the chamber should be treated with some protection agent against corrosion.

In case of any mechanical problem (the draught regulator is blocked, or the circulation pump is defect) stop the boiler operation first – only when the boiler is cold, repair action can be undertaken.

### 5.2 Boiler cleaning and maintenance

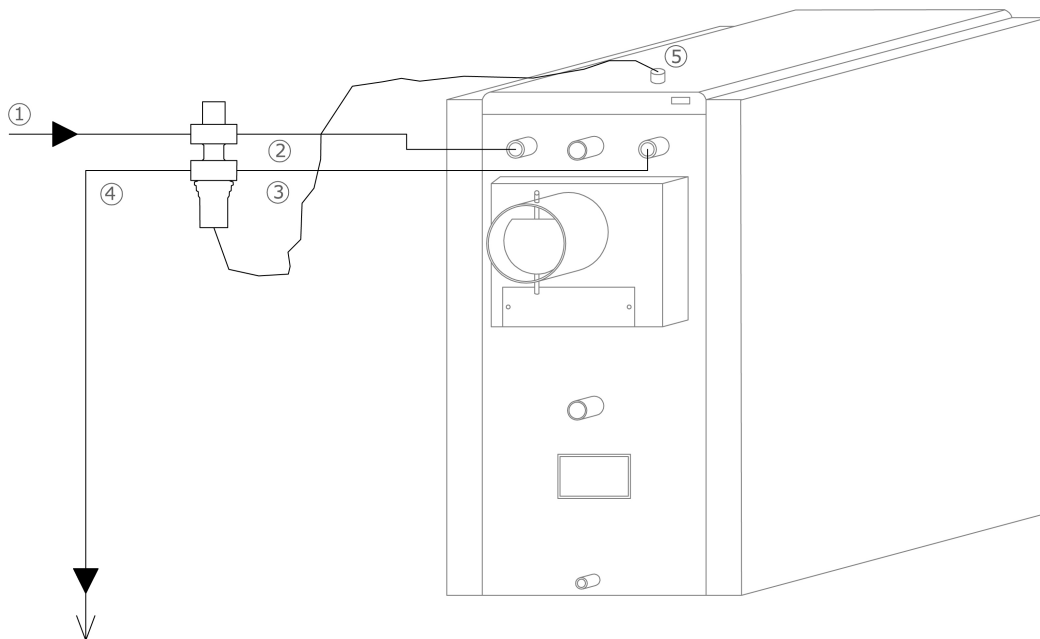
It is recommended that the boiler is cleansed from ash once to two times weekly. A detailed cleansing of the boiler should be done once a month and also when the heating season ends. Regular maintenance extends the service life of the boiler. Cleaning is to be done through upper and lower door of the boiler but also using the opening on the back side (chapter 1, position 10).

## 6 Safety features

### 6.1 Thermal safety in case of overheat (closed systems)

For hydraulic protection in the closed systems it is necessary to install to safety thermal valve shown on image (to be bought separately, not an integral part of the boiler).

If for some reason the temperature of the water inside the boiler should exceed 95°C this valve would release the water from the water supply system to cool down the water temperature inside the boiler.



Connection scheme for the thermal safety valve: 1. Cold water entering from the water supply system 2. Cold water entry into boiler 3. Hot water going outside the boiler 4. hot water ending in the sewage water system 5. Thermo-valve sensor

To connect the safety valve:

- Connect the sensor of the valve (outer thread 1/2") at depicted place on the boiler, position 5 (inner thread 1/2")
- Connect the cold water entry (on valve's input is marked with C) than connect the exit line (valve marked with:→) with the corresponding exit line on the boiler (position 21)
- Connect position 21 (on the boiler) with the input line on the valve (valve is marked with: ←)
- Connect the valve (marked with S) to the sewage system.



Prhovačka bb 22310 Šimanovci, Srbija  
Tel/Fax. +381 22 480404 +381 63 259422  
podrska@termomont.rs www.termomont.rs