

ThermoFLUX

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SOLID FUEL BOILER

TK



USE AND MAINTENANCE MANUAL

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1. INTRODUCTION

1.1. General overview



1.1.1. Description

The solid fuel boiler TK is made of quality materials that guarantee maximum efficiency in use and overall product quality. The boiler TK is intended for heating residential buildings and can be installed on an existing central heating system for an open or closed type.

The boiler was designed to burn solid fuel (coal , wood and bricquete). For these boilers it is recommended that the chimney does not have a smaller diameter than the chimney opening. A bigger chimney makes it easier to get a better smoke flue. We recommend that the chimney opening is the same height or greater than the chimney boiler opening. During boiler operation it is not necessary or advisable to leave the boiler door open.

Manual has been compiled based on the established directives, laws and norms:

European Directive

CEE 92/95 on general product safety

CEE 98/37 on the safety devices

CEE 73/23-93/68 safety electrical materials

CEE89/336-92/31-93/97 on electromagnetic compatibility

Technical norms

UNI EN 292/1-292/2 safety devices (Basic)

CEI EN 602 041 safety devices (control panel on the machine and equipment)

UNI EN 563 safety devices (temperature of contact surfaces)

NOTE: In accordance with D.L. 277/91 Our company does not use asbestos or materials that are considered hazardous to health. Materials used by current standards is not considered harmful to health; gaskets holders are made of fiber glass rope.

1.1.2. Identification and purpose of the document

This manual has been issued by THERMO FLUX d.o.o. and it is an integrated part of the device. It is not allowed to copy it, or even its partial parts.

THERMO FLUX d.o.o. attempts to provide the user with all information regarding the safety of the boiler, in order to avoid injuries of persons, things and parts of the boiler. Please read this manual carefully before using and any other product intervention.

1.1.3. Manufacturer identification

Identification THERMOFLUX doo as a producer is evident, as specified in Directive 98/37 CEE through the following acts:

- confirmation of conformity
- user manual and maintenance

1.1.4. Device identification

Based on the label located on the device can be seen:

- Year of manufacture
- Serial number
- The content of water in the boiler
- Thermal power
- Maximum operating temperature and
- The maximum working pressure

1.1.5. Proper and improper use

The device is a heat generator for the production of hot water under pressure, suitable for combustion of solid fuel (wood, coal, briquettes). Any other use is incorrect. Using unsuitable fuel can cause substances that are harmful to your health and can damage the installation. Never use plastic, household scrap, chemically treated wood residues, pellets or powdered materials for the combustion.

1.1.6. Responsibility

Company THERMOFLUX d.o.o. intervenes in the case of technical assistance required to the user.

The installer is responsible for setting up the boiler, as it must respect the technical regulations which are listed in this guide.

Company THERMO FLUX d.o.o. is not responsible for any damages, direct or indirect, caused by things or people in general average products or those relating to forced delays in the use of the same.

Disputes that happen between THERMO FLUX d.o.o. and the customer will be resolved through arbitration. In case if there is no agreement jurisdiction is the court in Jajce.

Guarantee or producer responsibility can not be called in case of damage to persons and / or goods, in case if the damage is due to the following reasons:

- a) incorrect installation devices
- b) improper use of the device
- c) modification of the device

1.2. SAFETY AND OTHER RISKS

1.2.1. Risks related to the use of devices

The device is designed with all approvals, with the necessary props safety prescribed by the European Directive and the same applied.

In place are designed to take into consideration, taking into account the status of activities, European and National Safety Standard concerning certain types of devices.

Even though this may appear a certain risk if:

- 1) the device used in an improper way;
- 2) the device is installed by a non qualified person;
- 3) if the important instructions for safe use specified in this manual have not respected

Other risks

The device was designed and built by respecting all norms concerning given security and those that are applied. Although have been considered all possible cases of risk in relation to all applicable standards, in any case it can happen, in addition to the improper use of the following risks:



Risks of burns in the combustion stage ignition and / or approaches to safety doors and those for cleaning when boiler is running.



The risk of injuries to fingers when opening a safety door for cleaning or door for loading fuel. Recommended the use of appropriate devices for personal protection (gloves).

Risk of **asphyxiation** in case of insufficient evacuation of the flue gas (small underpressure in the chimney). It is recommended to periodically thoroughly cleaned pipe flue gas, the firebox and chimney.

1.3. Conditions of guarantee

1.3.1. Start and end of guarantee

The warranty start to run from the day of sale of the boiler and is valid for a period of 3 years in body of the boiler (max temperature 90 ° C).


The warranty does not cover damage caused by transportation, improper installation, connection to the network inadequate in relation to the shown in the attached schemas or damage caused by unqualified and unauthorized persons. During the current period, ThermoFLUX will repair and replace free of charge, the parts which were submitted to the defective.


The warranty becomes void if the device is not marked unit designation. The warranty excludes any damage compensation due to improper use that might seek from ThermoFLUX, as is the fact that we did not direct executors installation apparatus.


The guarantee is not considered valid in the case if they are not complied with any of the following regulations:

- a) The products must be installed according to the rules given activity and applicable laws and regulations
- b) water supply to the boiler must have its physical and chemical characteristics that do not make the sludge or corrosive parts of the product with which it comes into contact.
- c) When connecting the boiler to the hot water tank (buffer) required to provide heating return water to the boiler.

NOTE: The identification label is visible on the side plating on the left side

		<div>ThermoFLUX</div> <div>ThermoFLUX d.o.o. Bage br.3, 70101 Jajce Bosna i Hercegovina www.thermoflux.ba</div>	
Tip : TOPLOVODNI KOTAO NA ČVRSTO GORIVO			
Model:	TK 45	Serijski broj.:	13001
Toplinska snaga:			45 kW
Maksimalni radni pritisak :			3 bar
Maksimalna radna temperatura :			85 °C
Sadržaj vode (l) :		108	God. proizvodnje: 2013

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	Tip : TOPLOVODNI KOTAO NA ČVRSTO GORIVO		
Model:	TK 35	Serijski broj.:	13001
Toplinska snaga:			35 kW
Maksimalni radni pritisak :			3 bar
Maksimalna radna temperatura :			85 °C
Sadržaj vode (l) :	90	God. proizvodnje:	2013

			
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Tip : TOPLOVODNI KOTAO NA ČVRSTO GORIVO			
Model:	TK 28	Serijski broj.:	13001
Toplinska snaga:			28 kW
Maksimalni radni pritisak :			3 bar
Maksimalna radna temperatura :			85 °C
Sadržaj vode (l) :		75	God. proizvodnje: 2013

1.3.2. Minimum distances to be respected between the boiler and the objects and walls

This paragraph presents the minimum distances to be respected.

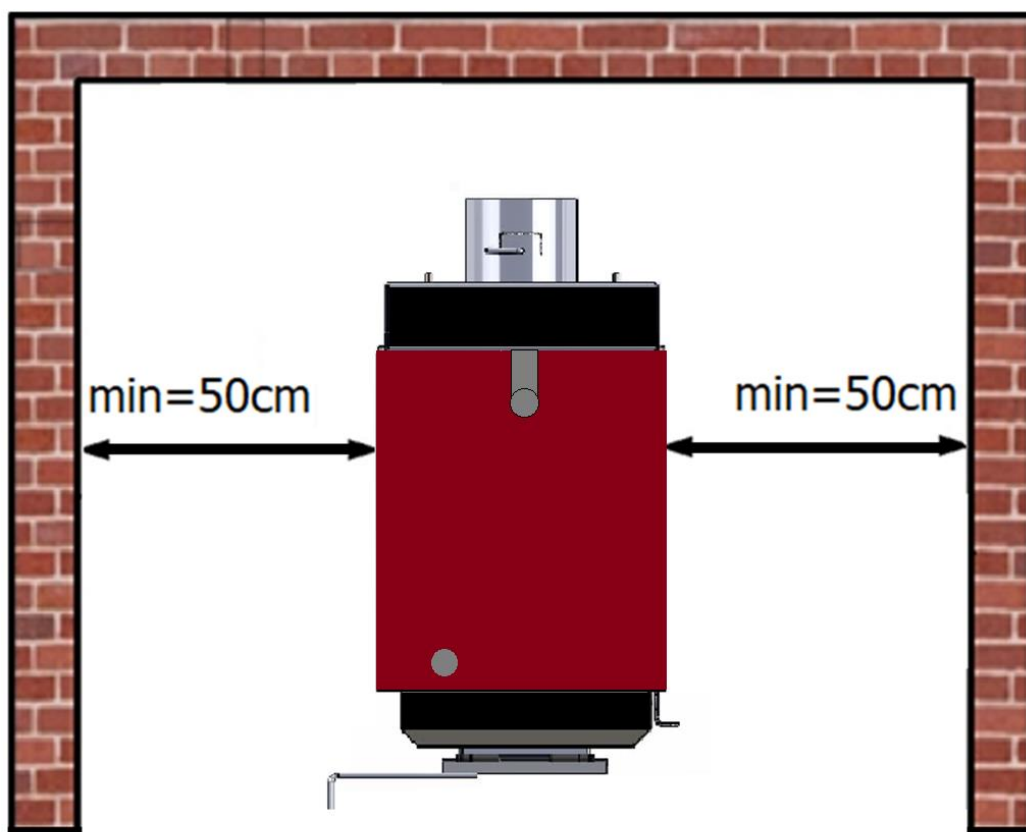
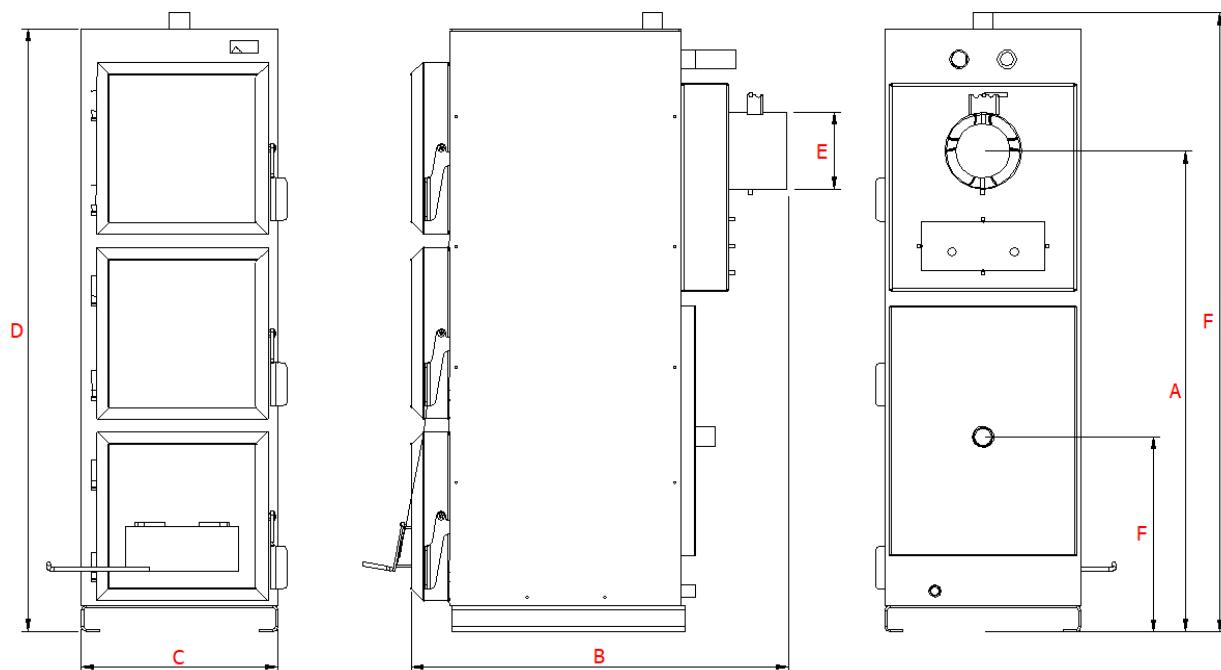


Table 1. Units shown in millimeters

MODEL	A	B
TK 28	500	500
TK 35	500	500
TK 45	500	500

Pay special attention to the distance the boiler from wall and observe the minimum distances for easy maintenance and cleaning.

1.3.3. Technical data

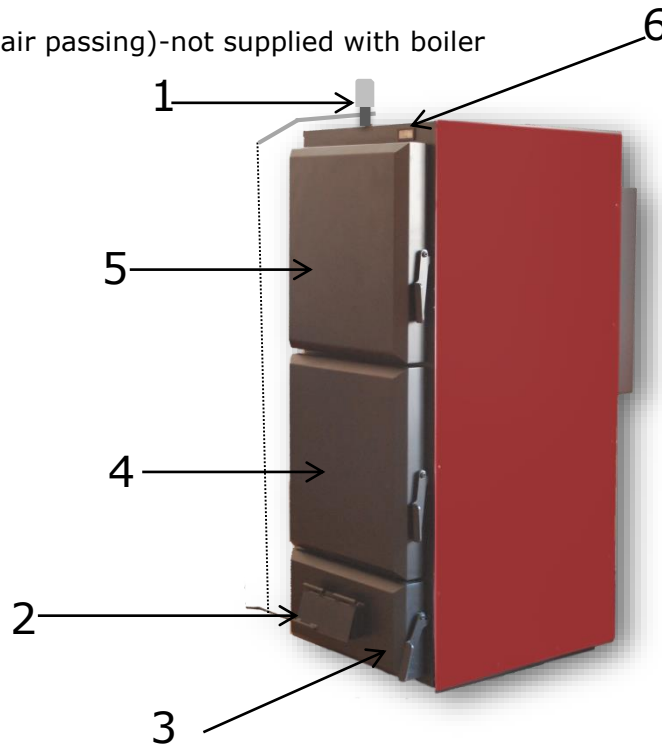


	Technical data	J.M	TK 20	TK 28	TK 35	TK 45
1	Nominal power	kW	15-22	23-30	33-40	40-50
2	Water content	l	55	65	85	95
3	Weight	kg	251	283	323	363
4	Out-/Inlet pipe diameter	"	5/4"	5/4"	5/4"	5/4"
5	Maximum outlet temperature	°C	85	85	85	85
6	Maximal allowable operating pressure	bar	3	3	3	3
7	A A Center of flue outlet hight	mm	1000	1000	1000	1000
8	B Boiler depth	mm	795	795	940	1070
9	C Boiler widht	mm	415	515	515	515
10	D Boiler height	mm	1255	1255	1255	1255
11	E Flue pipe diameter	mm	160	160	160	180
12	F Out-/Inlet pipe height	mm	1285/405	1285/405	1285/405	1285/405
13	Maximum inlet/outlet temperature	°C	55/85	55/85	55/85	55/85
14	Loading door dimensions (height x widht)	mm	250x240	250x340	250x340	250x340
15	Max lenght of wood log	mm	410	410	550	680
16	Fuel	--	Wood/coal	Wood/coal	Wood/coal	Wood/coal
17	Chimney outlet - back	--	Back	Back	Back	Back

2. BOILER DESCRIPTION

Three parts of the Boiler are:

1. Combustion regulator (air passing)-not supplied with boiler
2. Primary air door
3. Ash pan door
4. Firebox door
5. Heat exchanger door
6. Thermometer



Over regulator combustion (air passing) set the desired temperature of boiler water and limits to max. value. Primary air door (associated with air passing regulator) regulates the air supply.

The thermometer shows the temperature of the water in the boiler.

ThermoFlux leaves itself to subsequently presented change without notice.

2.1. Regulations for the installation

2.1.1. General Guidelines

The definition of a device that is subject to the Directives 98/37 / CEE is to be used as a heat generator for solid fuels. The device can only operate with a complete installation. The installation or device includes:

- Hot water distribution network (hydro-device), is complete with all the necessary components to be able to operate under safety measures.
- Smoke flue for flue gas production.
- Connecting the heat exchanger.

2.2. Connecting on the central heating system

The boiler can be installed on OPEN and CLOSED heating systems. The task of the installer is to perform the boiler installation and installation in accordance with the applicable legal regulations.

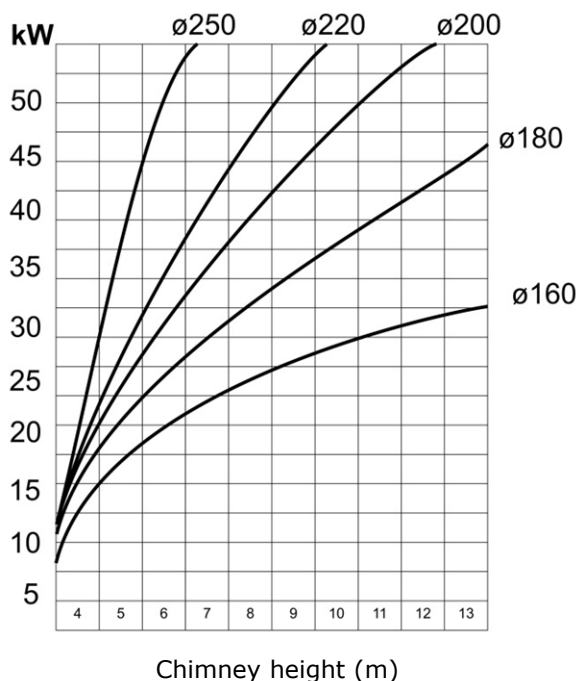
2.3. Flue gas pipes

The venting of flue gas must be done in accordance with all applicable laws including those related to dimensions of the chimney and materials used for its production. Flue gas channel should be made of adequate materials, such as steel tubes, with various sealing.

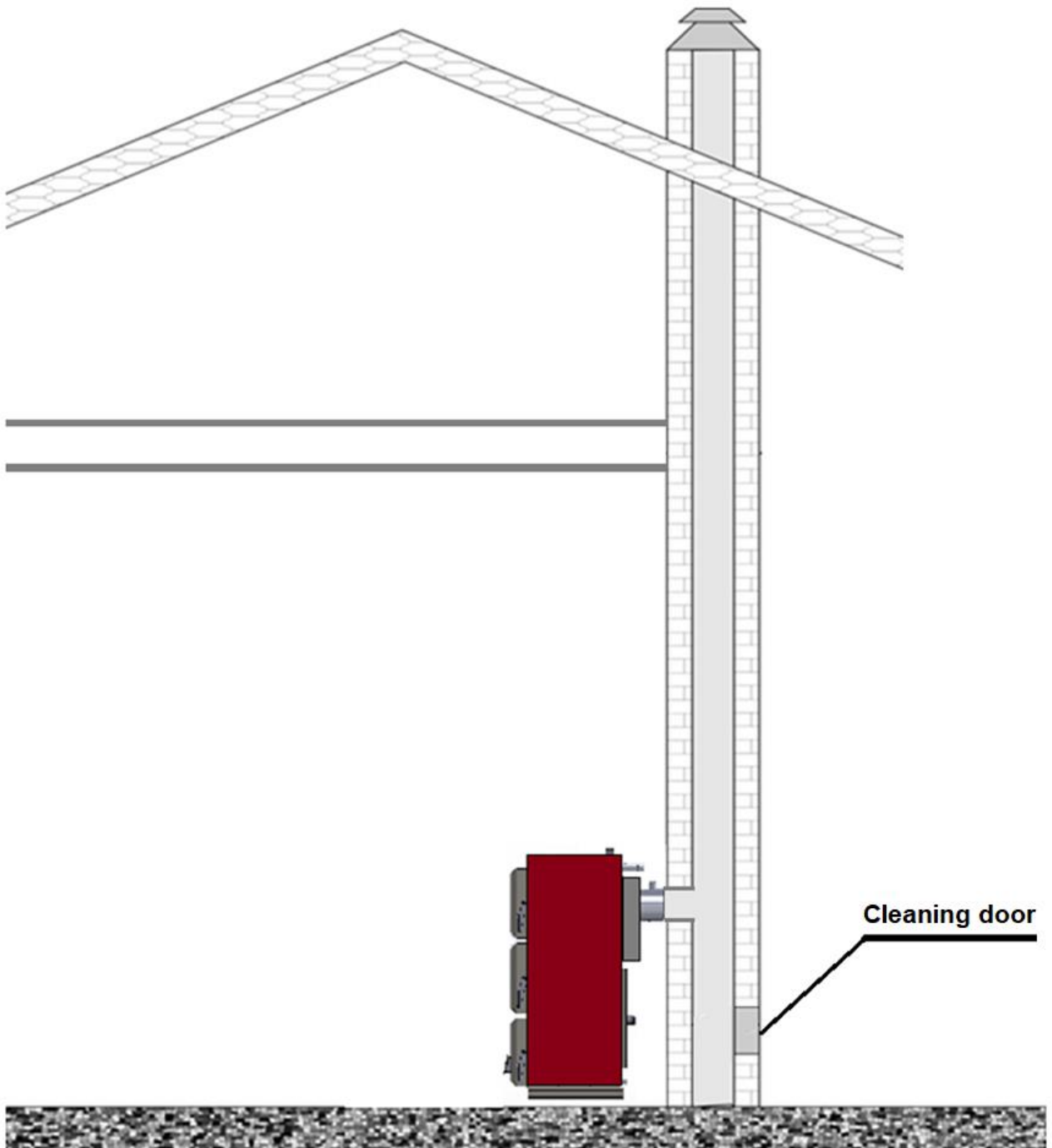
In any case, materials that could potentially catch fire, e.g. wooden planks, beams, cloth, should be adequately protected with non-combustible material. For the sake of parity of dimensions, chimneys that are round in shape of the inner part should have an advantage over the rectangular-shaped chimneys. Too small inner zone can cause irregular flow from the boiler to the top which could lead to poor boiler performance and excessive exhaust gas production that discharges the exhaust gas to the environment. Gas flue pipe should be permanently installed and it would be good to make safety door which would enable the cleaning of inner parts, especially the horizontal parts.

ALL PARTS OF THE GAS FLUE PIPE MUST BE SAFE AND REPLACEABLE IN ORDER TO ENABLE THE CLEANING OF INTERNAL PARTS.

HORIZONTAL DEVIATIONS AND 90° ANGLES SHOULD BE AVOIDED.



The table shows the ratio of the diameter and the height of the chimney to the strength of the boiler.



NOTE

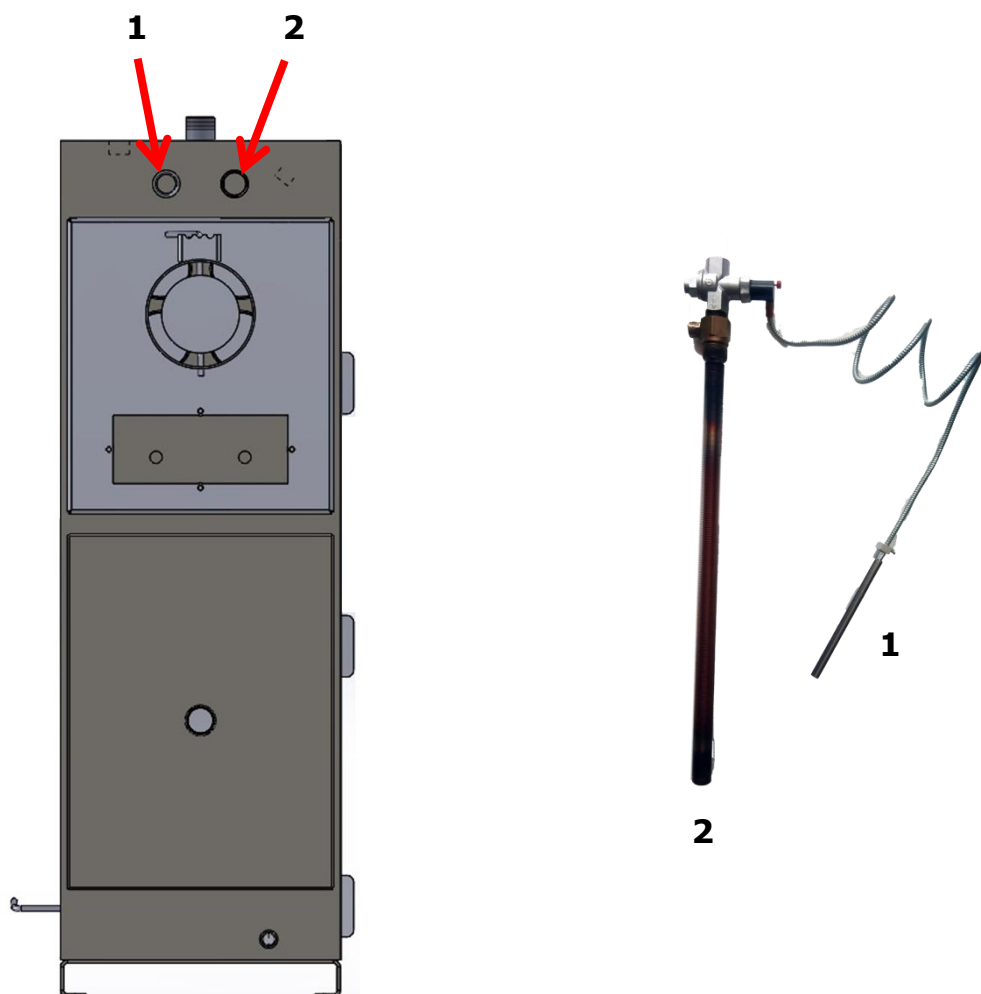
All parts of the exhaust pipe for the flue gas should be safe and replaceable in order to be available internal cleaning

2.4. Boiler protection against overheating

To protect the boiler from possible overheating, we can install a heat exchanger on the boiler's intended location or install a double safety thermal valve (such as Caleffi 544).

2.4.1. Connection of the safety heat exchanger

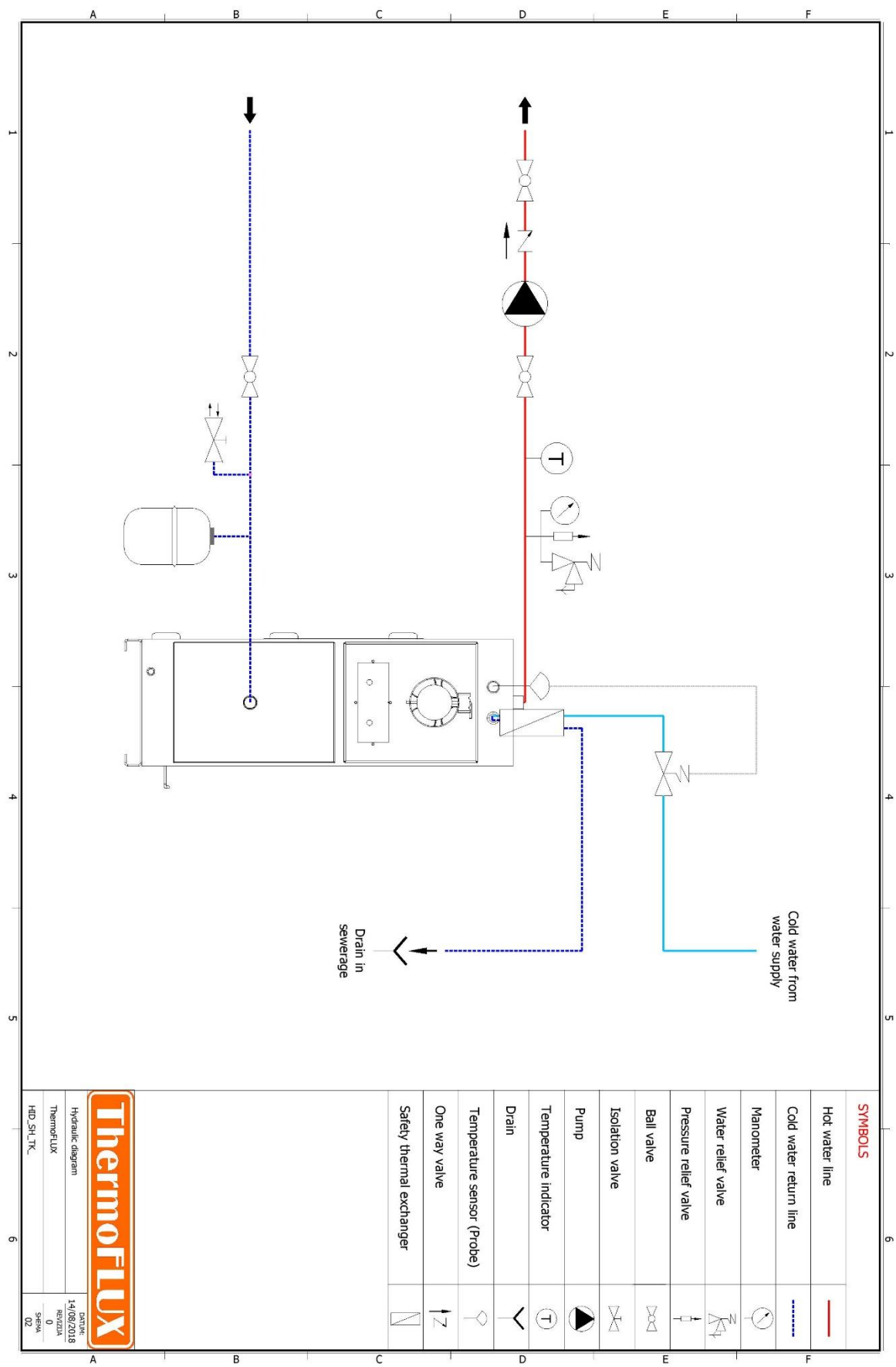
Place for connection



For boilers is recommended to install an external safety heat exchanger (cooling loop). In countries where the valid EN 303-5, the boiler must have equipment that ensures the safe removal of excess heat without additional energy. In this way, will not exceed the maximum temperature of the boiler water of 100 ° C (protection against overheating). Minimum pressure cooling water must be 2.0 bar (maximum 6.0 bar). There must be a minimum flow rate of 11 l / min.

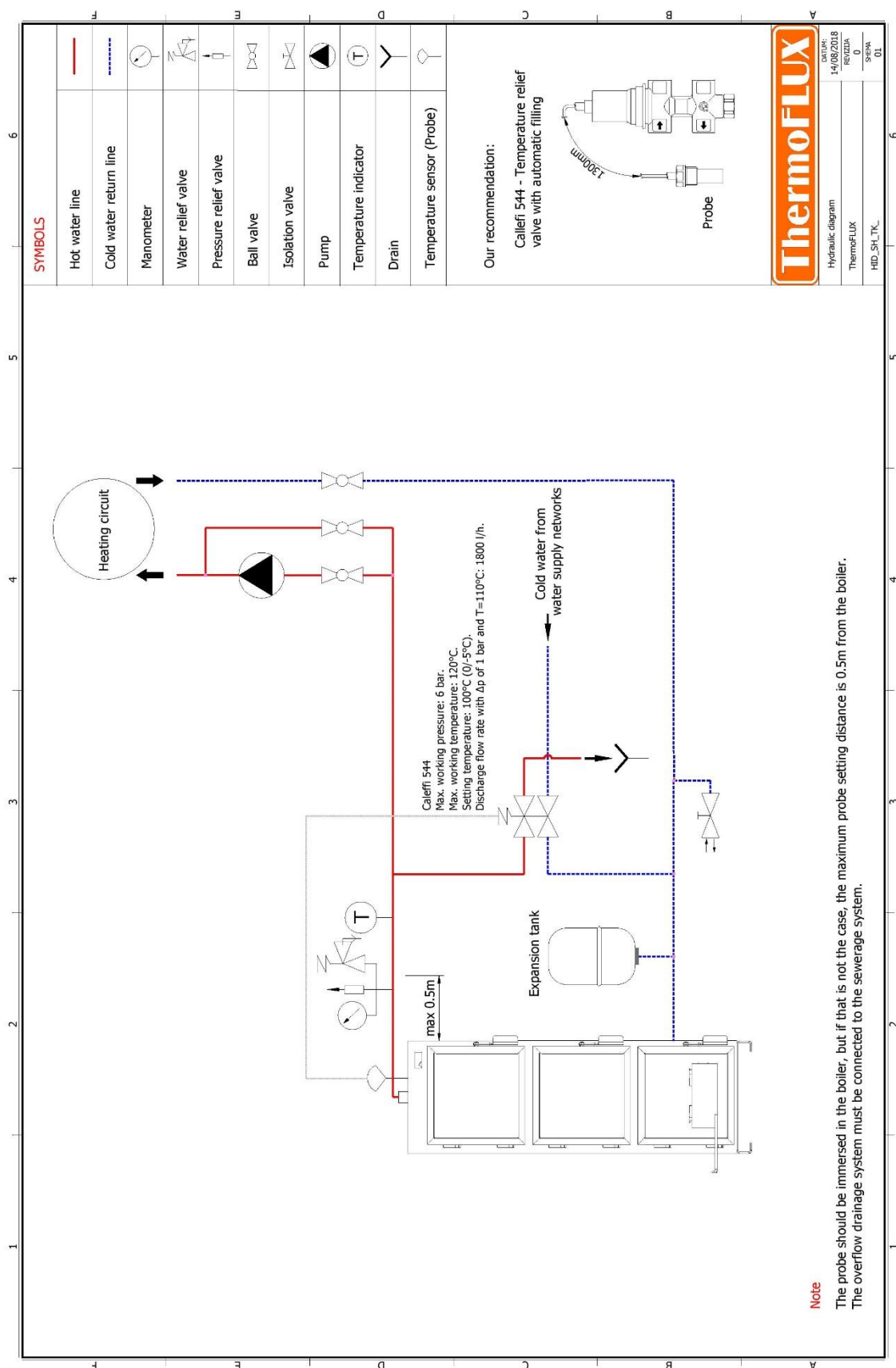
- Safety heat exchanger is always connected to the hydraulic circuit diagram
- The supply ahead of thermostatic valves should be installed one filter for dirt that may in the case of valve leave the valve into the open position.

Hydraulic diagram connection safety thermal exchanger



2.4.2. Connection of temperature relief valve with automatic filling

Hydraulic connection diagram of double safety thermal valve CALEFFI 544.



2.5. Ignition

1. Precondition for ignition is that the boiler is connected to the central heating system and flue gas system.
2. Fill the firebox with dry tiny pieces of wood so that the combustion chamber volume is filled with 20%, and light the fire (paper, dice for kindling ...)
3. Close the door for fuel.
4. Open the lower door (door for kindling and cleaning). Also, open the barred door and light the firewood.
5. When the wood is turned into embers, close the lower door, fill the boiler with coal or wood as you like.

2.6. Combustion

Depending on the type of fuel we use and its quality, we charge approx. 2 to 4 hours in wood burning, and if we use the coal we need to recharge every approx. 3 to 5 hours.



Opening upper door during work do rarely and only to review how the boiler works. Door open slowly, cautiously and very little. So keep them around 10 seconds and then open it completely. If you open the door quickly, then created combustion gases exit through the door and in contact with oxygen react violently. In such cases, can lead to severe injury firemen or ignition boiler room.

2.7. Cleaning the chimney and other parts of the boiler

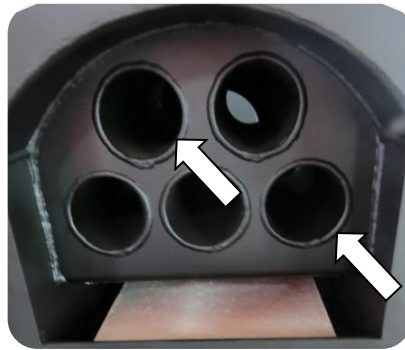
It should be performed at least twice a year, at the beginning and middle of heating season, and each time it is needed. If there are horizontal extensions necessary to check and remove any leftover ash and soot before it reaches the blockage of the passage of flue gases.



Attention! It is recommended that constantly checks, (at least monthly) ways for drain flue gas free and without ashes, especially in intro drainage, which may have narrowed sections and parts.

SOLID FUEL BOILER - TK

Cleaning the boiler is performed as needed. Cleaning interval depends on the quality and type of energy source and intensity of the heating. Properly maintained boiler enables maximal efficiency.



1. Cleaning is performed in tube heat exchanger with a brush / poker that comes with the boiler (at least 1-2 times in fifteen days depending upon the need)



2. Emptying the ash pan and space where there is (1 day or as needed).
- 3.



4. Cleaning the flue gas chambers is performed so you unscrew the nuts and remove the cover on the flue gas chamber. Then perform a cleaning throwing deposits in fireproof container (at least once a month or as needed)

Maintenance of the boiler is one of the most important factors for long life boiler. It is particularly important that the offseason boiler is cleaned and to perform neutralization acids as already described.

2.8. The creation of condensation and tar

Wrong handling of the boiler results in a large amount of condensate and tar. This can cause damage to the boiler as well as the flue gas installation.

During ignition water condensation occurs, visible on the inner walls of the boiler. The amount of water can be great. This "sweating" of the boiler will cease as soon as the ashes build up on the inner walls of the boiler.

When the boiler has a low boiler temperature (below 55 °C), and if the fuel contains a high degree of humidity, condensation on heating surfaces also occurs. Heating with low boiler temperature leads to the formation of tar, which can lead to the occurrence of earlier damages to the flue gas device.

The boiler must always work with water temperature between 65 ° C and 90 ° C to prevent the formation of condensate and deposition of tar. The condensate mixing with soot and tar creates chemical compounds that damage the walls of the furnace and cause the boiler to decay. The only 1 mm wall thickness on the walls reduces the usability of the boiler by 5%, so that for example a 35 kW boiler with 3 mm racks does not give 35 kW, but effectively produces less than 30 kW.

3. SECURITY

- Ashes take it out in iron bucket with a lid.
- Boiler be cleaned only with a non-flammable.
- Flammable items should not be placed on or near the boiler (within safe distance).
- Flammable materials should not be stored in the boiler room (eg wood, paper, petroleum, oil).



Ensure supply of fresh air to the boiler room

4. SERVICE

Authorized importer-seller is responsible for warranty terms and servicing.

During warranty, we will fix all any defects or errors caused in the production of the product, and malfunctions when operating in accordance with instructions .

Warranty does not include repairs of malfunctions and defects caused by:

1. improper or careless handling;
2. improper opening and repairing ;
3. improper mounting, mechanical damage and overload during work;
4. not complied instructions for use