

KÖBER SRL VADURI BRANCH



USER MANUAL CONDENSING WALL-MOUNTED GAS BOILER

●C38GC45V1●

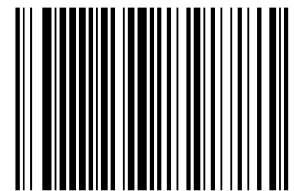


The image is for presentation only. The product differs depending on the model purchased, on the area and the acquisition period.



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1 SAFETY INSTRUCTIONS AND SYMBOLS

When installing the boiler, please follow the safety instructions in this manual!

This manual is the property of KÖBER SRL- VADURI BRANCH. It is forbidden to copy or reproduce it without the written approval of KÖBER SRL-VADURI BRANCH.

In the following, the symbols used in the text are made explicit:



Danger! -direct danger to bodily integrity and life;



Danger! -danger of death from electric shock;



Caution! -potentially hazardous situation for the product and the environment;



Indication! -useful information and indications. This symbol indicates a required activity;

1.1 Validity of instructions

These instructions are valid exclusively for condensing wall-mounted boilers of the C38 * range, models:

MODEL	TRADE NAME	POWER	FUNCTIONS PROVIDED
C38GC45V1	CONDENS 100 45 CH2	45 kW	HEATING PRODUCTION, WITHOUT 3-WAY VALVE

Where:

C38 - family of boilers / internal coding;

G - type of fuel - gas;

C- in condensation;

45- the maximum nominal power that the boiler can provide, in kW.

The boiler is designed to use gas of classes: G20, G25, G25.1, G31.



Caution!

The type of gas for which the device is set in factory is natural gas, G20.

The installation of the product for the use of another type of gas other than the one for which the appliance was set in the factory is prohibited and leads to the loss of the warranty!



Caution!

The use of another type of gas is prohibited.

1.2 CE marking

The CE marking applied on this product guarantees that the appliance meets the essential conditions specified in the European legislation in force:

- the European regulation on appliances consuming gaseous fuels EU 2016/426;
- EcoDesign Directive 2009/125 / EC;
- the directive on energy efficiency 92/42 / EEC and the European Regulations no. 811-814 / 2013;
- Directive on electromagnetic compatibility 2004/108 / EC (eg 89/366 / EEC);
- low voltage directive 2006/95 / EC (ex. 73/23 / EEC).

1.3 Description and operation of the device

The boiler of the C38 range represents a device that consumes gaseous fuel (natural gas) which has the role of transforming the energy of gaseous fuel, by combustion, into thermal energy. This device operates unattended due to the protection and control systems it is equipped with.

1.4 Intended use

- The boilers of the C38 range are designed according to current technical standards and are built in accordance with the recognized safety norms;
- In case of improper or non-compliant use, the health or life of users or third parties may be endangered, respectively the boiler or other material goods may be affected;
- This device must not be used by persons (including children) with limited or inexperienced mental, sensory and / or lack of knowledge;
- The boiler provides heat in closed installations of central heating and domestic hot water as instant. Use for other purposes or for purposes other than those provided is considered inconsistent with the intended use. For any damage resulting from this, the manufacturer / supplier assumes no liability. The risk is borne exclusively by the user;
- Follow the instructions for use and installation of all the related documentation, as well as of the inspection and maintenance provisions which are an integral part of the use in accordance with the intended use.



Caution!

Abuse of any kind is prohibited.

1.5 Product label

The technical operating parameters of your boiler can also be found on the product label that is pasted from the factory on the side wall of the boiler or on the front cover of the boiler, depending on the model.

2 DESCRIPTION OF THE BOILER

2.1 Structure

2.1.1 The structure of the condensing wall-mounted boiler model C38GC45V1

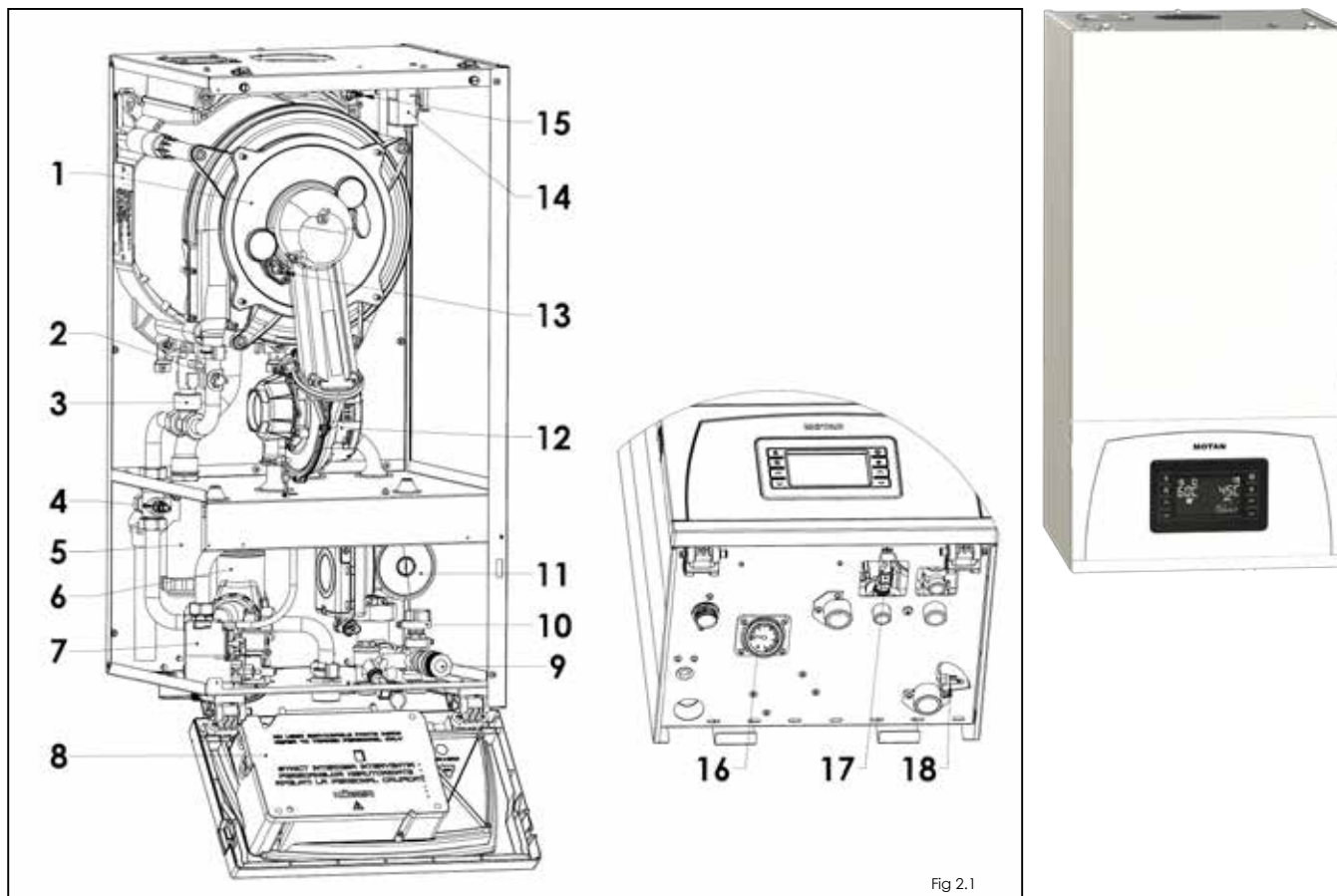


Fig 2.1

Tab. 2.1 Condensing wall-mounted boiler components

1	Main heat exchanger	10	Pressure sensor
2	Primary circuit overtemperature thermostat	11	Circulation pump
3	Flowswitch	12	Fan with built-in nozzle
4	District heating temperature sensor	13	Ignition electrode
5	Condensation siphon	14	Ignition transformer
6	Automatic aerator	15	Flue gas temperature sensor
7	Gas valve	16	Pressure gauge
8	Electronic board box	17	Filling valve
9	Overpressure valve 3 bar	18	Heating return temperature sensor



Caution!

The C38GC45V1 gas boiler is not equipped with an expansion tank; its installation and connection must be done by the installer. Installing the power plant in an installation without an expansion tank is not covered by the warranty!

2.2 Constructive and functional characteristics

Tab. 2.2.1: Technical characteristics of the boiler model C38GC45V1:

Name		CONDENS 100 45 CH2		
Type		C38GC45V1		
Gas category		H2H3P (GN-G20 ; GPL-G31)		
Circulation		Forced		
Combustion chamber		Condensation		
Yield stars (dir. 92/42 / EEC)		****		
NOx class (G20)		5		
Energy efficiency class in district heating operation		A		
Energy efficiency class in operation on domestic hot water		A		
Nominal caloric flow min / max - district heating	G20	kW	5.1 / 46.95	
	G31	kW	6,1-47,1	
Maximum rated power (80/60 ° C) (kW)	G20	kW	44.7	
	G31	kW	44,6	
Maximum rated power (50/30 ° C) (kW)	G20	kW	49.6	
	G31	kW	49,5	
Useful efficiency at nominal caloric flow at 80/60 ° C	G20	%	97.33	
Useful efficiency at nominal caloric flow at 50/30 ° C	G20	%	105.70	
Maximum nominal fuel consumption depending on the condensing / non-condensing operating mode	G20	mc/h	4.97	
	G31	mc/h	1,92	
Seasonal energy efficiency related to space heating in active mode η_s (%)		91		
Condensation amount (50/30 ° C)		3.3 l / h		
GN at connection (after reducer)		20 mbar (max. 25 mbar, min. 17 mbar)		
GN maximum allowable		35 mbar		
Modulation report		1: 9		
Pressure on the district heating circuit		minimum 0.8 bar - maximum 3 bar		
Temperature adjustment range		30 ÷ 80 ° C		
Floor system temperature adjustment interval		15 ÷ 45 ° C		
Boiler temperature adjustment range on the boiler		30 ÷ 60 ° C		
Electrical characteristics	Feeding	~ 230VAC / 50 Hz		
	Nominal power	180 W		
Interface	Display type	LCD		
	Display size	4.3 inches		
Constructive features	Height	788 mm		
	Width	400 mm		
	Depth	372 mm		
	Height with elbow mounted	938 mm		
	Weight	~ 37 kg		
	Primary heat exchanger capacity	~4,2l		
	CONNECTIONS	Heating input and output	1"	
		District heating filling	1/2 "	
		Gas supply	3/4 "	
	Hydraulic group	Bronze material		
Exhaust type	C13; C13x; C33; C33x; C43; C43x; C83; C83x; C93; C93x			
Type of exhaust pipe **	Lungime kit coaxial D60/D100 min. 1m - max. 20m Lungime kit dual D80/D80 min. 1m - max. 5m			
Flue gas temperature (return temperature 30 ° C)		~ 59 ° C		
Protection class		IPX4D class		
Informative values:	The maximum recommended volume of water in the installation		200 l	

(**) - The boiler is delivered standard with coaxial kit, the dual kit is delivered as an accessory on request (see chap. 5.7.2)

3 SAFETY INSTRUCTIONS

3.1 Safety instructions

3.1.1 Installation and adjustment

Installation can only be performed by an authorized installer. It also takes responsibility for the correct installation and for the first commissioning. Carrying out the adjustment works as well as the maintenance and repair is allowed only to a company authorized and approved by KÖBER SRL Vaduri.



Danger!

Danger to life due to poisoning and explosion due to leaks in the gas routes in case of irregular installation!

Danger of damage when using improper tools. When tightening or loosening threaded joints, use only suitable fixed wrenches (no tubular wrenches, extension wrenches, etc.).

3.1.2 Smell of gas

When the smell of gas appears, the following will be taken into account:

- Do not operate the electrical switches in the dangerous area;
- Do not use open flames;
- Do not smoke in the dangerous area;
- Do not use the phone in a dangerous area;
- Close the gas valve;
- Ventilate endangered area;
- Notify the gas distribution company.

3.1.3 Changes in the adjacent area of the heater

No operation to modify the following installations is allowed:

- The boiler;
- For gas, water pipes and electricity cables;
- For air / gas intake / exhaust pipes.

4 ASSEMBLY

4.1 Unpacking the product

1. Remove the product from the carton.
2. Remove the protective film from the product.

4.2 Mounting set

Check that the mounting set is complete and undamaged - see table 4.1.

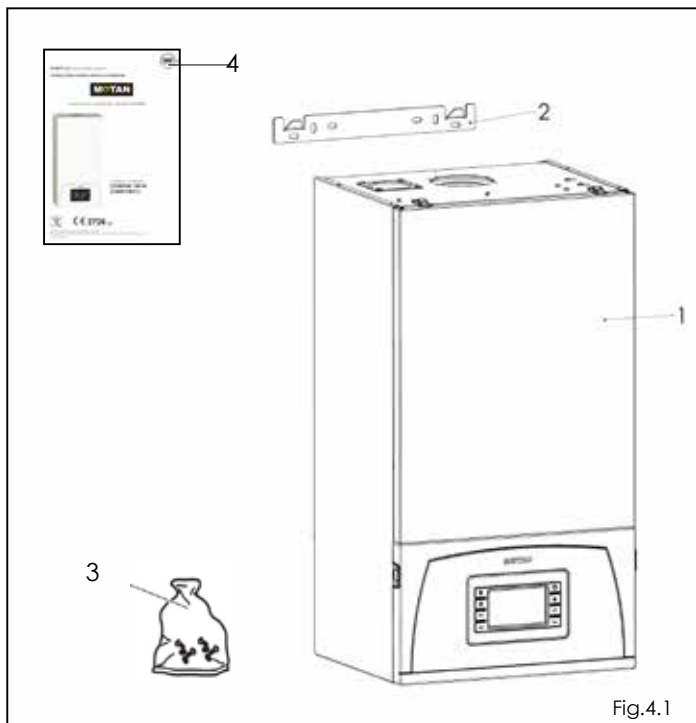


Fig.4.1

Tab. 4.1 Mounting set		
Pos.	Pcs.	Name
1	1	Boiler * * The image is for presentation only. The product differs depending on the model purchased, the area and the period of purchase. The 230Vac power cord does not have a plug. It will be mounted when installing the product, at the customer's expense.
2	1	Boiler support
3	1	Small bag - contains: - mounting dowels 8x80 - 2 pcs.
4	1	Printed package - contains: - technical manual - 1 pc. - declaration of conformity - 1 pc - warranty certificate and commissioning report -1 pc.

4.3 Overall dimensions and mounting position

4.3.1 Place of installation

When choosing the installation location, please consider the following safety instructions:



Caution!

Do not install the boiler in areas endangered by frost! In case of frost the boiler can be damaged. These devices cannot be installed and used outdoors. External installation may cause malfunctions.



Caution!

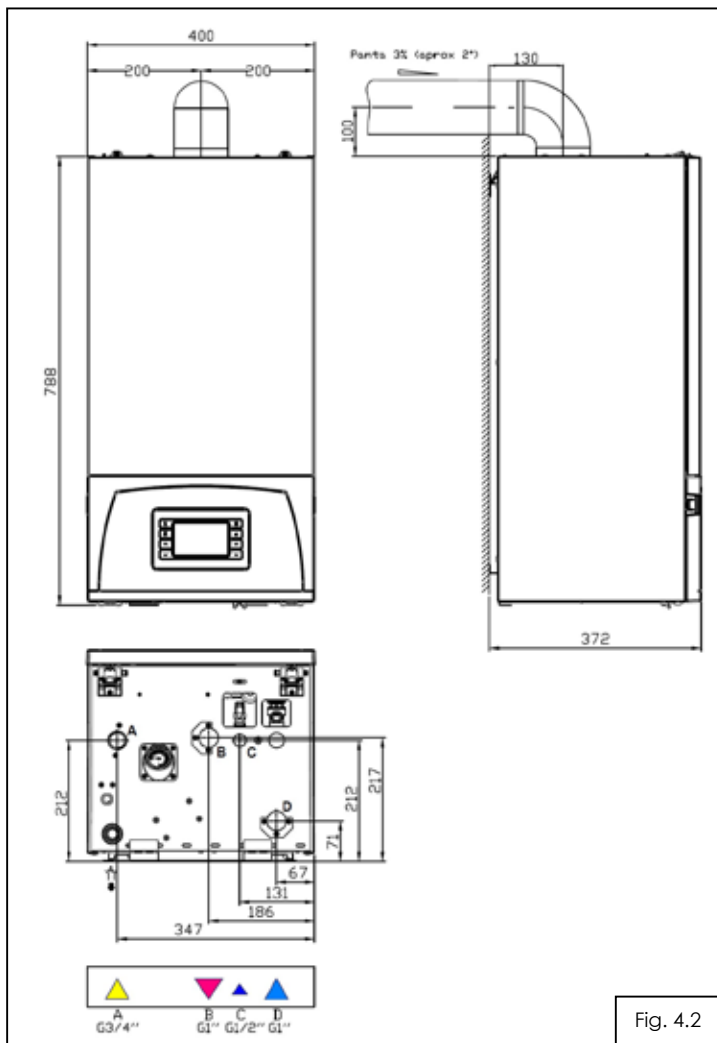
It is not recommended to install the heating boiler in bathrooms, kitchens, near a swimming pool, laundry or other areas with high humidity. The boiler can only be installed in premises with a maximum humidity of 60% in the range of 20-30 ° C, in order to prevent damage to the electronic components.



Caution!

The combustion air of the boiler must not contain: chlorine, ammonia, alkaline agents, halogenated hydrocarbons, freon, gypsum-cardboard particles, lint, dirt or dust; otherwise damage to the heat exchanger may occur. The boiler must NOT be installed in an environment with high humidity, dust, vapors, condensation or with ambient temperatures higher than + 50 ° C or below 15 ° C. These substances can lead over time to the formation of corrosion in the appliance and in the air / gas intake / exhaust pipes.

FIG. 4.2 Overall dimensions and mounting positions of thermal boiler model C38GC45V1:



The legend:

- A - Fuel supply connection
- B - District heating connection
- C - Heating circuit charging connection
- D - Heating return connection

Fig. 4.2

4.3.2 Minimum required distances / free spaces for mounting

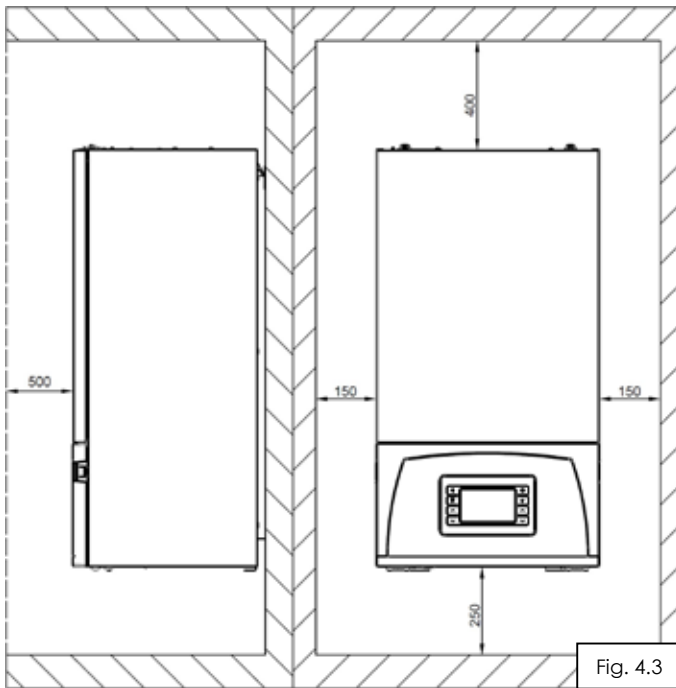


Fig. 4.3

Both for the installation / assembly of the boiler, and for carrying out subsequent maintenance works, you need the following minimum distances (fig. 4.3), respectively minimum free spaces for installation:

- distance from the front: 500 mm;
- distance from the sides: 150 mm;
- distance from the bottom: 250 mm;
- distance from the top: 400 mm;

**Caution!**

Danger of damage to the boiler due to incorrect fixing!

The device can only be mounted on a flat, fixed surface.

**Indication!**

The minimum distances / free mounting spaces mentioned are also valid for mounting in recessed furniture.

4.4 Fixing the boiler

- Drill two holes for fixing the boiler support (1);
- Mark the position of the exhaust / intake piping;
- Mount the boiler support (1) with the supplied dowels and screws (2, 3) on the wall (fig.4.4);
- Suspend the boiler (4) on the boiler support.

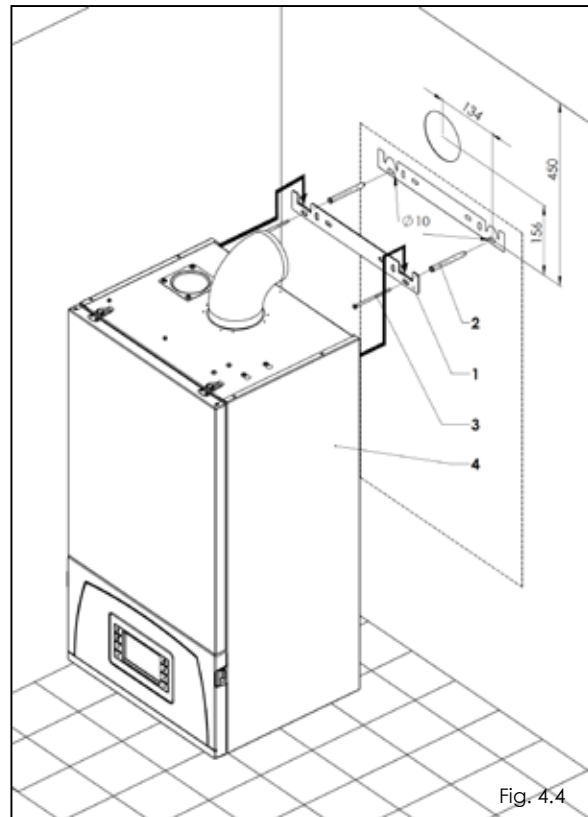


Fig. 4.4

5 INSTALLATION

5.1 Conditions for boiler installation

5.1.1 Installation instructions

The boiler will be subjected to the corrosion effect, from the moment it is filled with water. For granting of the warranty, during the whole warranty period, it is essential that the following installation instructions are taken into account in order not to aggravate the corrosion phenomenon.

- The flue gas must have a sulfur content within the limits of the European standard in force: a maximum of 150 mg / m³ is accepted for a short period of time, but the annual average must be 30 mg / m³.
Combustion air must not contain: chlorine, ammonia, alkaline agents, halogenated hydrocarbons, freon, drywall, lint, dirt or dust;
Installing the boiler near a swimming pool, a washing machine or laundry, can lead to contamination of the combustion air with these compounds;
- The pH of the water must be within the following limits: 7.5 < pH < 8.5 and if the installation contains aluminum components, it must be less than 8.5.
- **It is recommended to regularly check the pH of the heating agent, if the value does not fall within the limits given by the manufacturer, it is treated again;**
- The hardness of the water must be within the limits: 5 ° F < TH < 15 ° F (5 ° F (French degrees), the equivalent of 50 mg CaCO₃ or an equivalent amount of other Ca and Mg salts);
- Maximum permissible free residual chlorine content of 0.5 mg / l and maximum permissible chloride level of 250ppm;
- It is recommended to make repeated starts of the boiler, with the fuel valve turned off, in order to ventilate the installation. Opening and closing the 3-way valve, by permuting in summer / winter also allows a better ventilation of the installation.
- If the boiler is not used for a long time in the cold season, it is necessary to completely empty it in order not to damage due to frost. The use of antifreeze is not covered by the warranty.

5.1.2 Indications for the protection of the boiler in order to keep the warranty

Before and during the installation, the boiler must be protected from the inclusion of impurities: construction dust, sand, copper dust, grease, etc. as well as welding splashes, slag. In any of these cases, the installation must be washed well with clean water, mixed with a very concentrated cleaning agent.

In general, in order to maintain the warranty, it is necessary to apply any treatment necessary to prevent water contamination with the following:

- Black sludge (magnetite - Fe₃O₄) formed as a result of continuous electrolytic corrosion in any unprotected installation with an inhibitor;
- Red mud (rust - Fe₂O₃) - is a product of oxidation;
- Limestone deposits that are deposited especially on the hottest areas of the boiler;

The mixture of the three factors listed above causes most of the problems in your heating system.

Caution!



The presence of these substances (antifreeze / black mud / red mud / limescale deposits) means that the standard measures to prevent problems in your heating system have not been met. This is a cause a loss of commercial warranty!

5.2 Gas connection

The central unit is connected to the gas supply installation - through connection **A** (fig. 5.1),



Danger!

Danger to life due to poisoning and explosion due to leaks in the gas path in case of improper / defective installation!

The installation of the gas part is only allowed by an authorized installer. It also takes responsibility for the correct installation and for the first commissioning.

During the work, the legal provisions will be observed, as well as the local prescriptions of the gas supply companies.

When installing the gas pipe, make sure that it is not tense, so as not to cause leaks!



Caution!

The maximum safe operating pressure of the gas valve is 60 mbar! Damage may occur by exceeding this pressure. The natural gas pressure GN at the inlet of the gas valve must be maintained in the range of 20 ÷ 25 mbar!



Caution!

It is mandatory to mount a pressure regulator (with impurity filter) on the fuel supply circuit.



Caution!

If parasitic voltage appears on the gas pipe, it is insulated by installing an electrical insulating part (according to the Technical Norms for the design and execution of natural gas supply systems).

Boilers of the range C38GC45V1 are adjusted and tested in the factory for operation with GN-G20 natural gas. The gas connection is made of gas stainless steel pipe with an inner diameter of 16.4 mm. The gas supply line must not have a diameter smaller than the gas connection of the boiler. Refueling must be done in accordance with the legal regulations in force.



Caution!

Where the setting for operation on propane-G31 is necessary, this will be carried out by the authorized company at the time of putting the plant into operation. Defaults due to improper adjustment of the gas valve for G31 propane operation are not covered by the warranty!

5.3 Connecting the boiler to the heating installation

The boiler is connected to the district heating circuit by the connections **B** and **E** (Fig. 5.1).

When designing the district heating circuit, the hydraulic characteristic of the pump that equips this boiler model will be considered! See chap. 10.3 "Hydraulic characteristic of the pump".



Caution!

The boiler is not equipped with an expansion vessel; its installation and connection must be done by the installer. The installation of the boiler in an installation without an expansion vessel is not covered by the warranty.

It is recommended to connect the expansion vessel directly to the boiler by connecting to connection D (fig. 5.1), which is in the lower part of the boiler.



The dimensioning of the expansion vessel is made according to the volume of the heating installation!

Caution! Before connecting the boiler, carry out a thorough washing of the entire heating system! In this way, you remove debris such as magnetite powder, welding splashes, slag, hemp, putty, rust, coarse dirt or the like. Otherwise, these substances may deposit in the heat exchanger and may cause malfunctions.

The washing of the installation (new or old) is must be carried out through the service companies authorized and approved by KÖBER SRL once it is put into operation.

The defects appeared in the thermo-hydraulic circuit of the boiler, due to the non-washing of the installation (new or old) once it is put into operation, are not covered by the commercial warranty.



Indication!

The pH of the water must be within the limits: $7.5 < \text{pH} < 9.5$ and if the installation contains aluminum components, it must be less than 8.5, The hardness of the water must be within the limits: $5^\circ \text{F} < \text{TH} < 15^\circ \text{F}$ (5°F French degrees, the equivalent of 50 mg CaCO₃ or an equivalent amount of other Ca and Mg salts). Defects in the thermo-hydraulic circuit of the boiler, due to the high hardness of the water are not covered by the commercial warranty.



Caution!

On the return of the installation, it is mandatory to mount a mechanic (filter Y) of impurities

On the district heating circuit, it is mandatory to install, on the return of the installation, an anti-magnet filter to retain fine metallic impurities, which normally cannot be retained by the mechanical filter, and which are further entrained inside the hydraulic circuit of the boiler damaging the thermo-hydraulic components (irreparable damage to the gearbox body, operating noises, etc.)

If a magnetic filter is installed, the metal particles will be retained and will no longer be entrained in the boiler body!

The lack of a magnet filter leads to the loss of the commercial warranty!



Caution!

When installing the connection pipes, care must be taken not to strain them, in order to avoid leaks!

The maximum allowable working pressure is 3 bar.

The recommended working pressure is 1.5 bar.



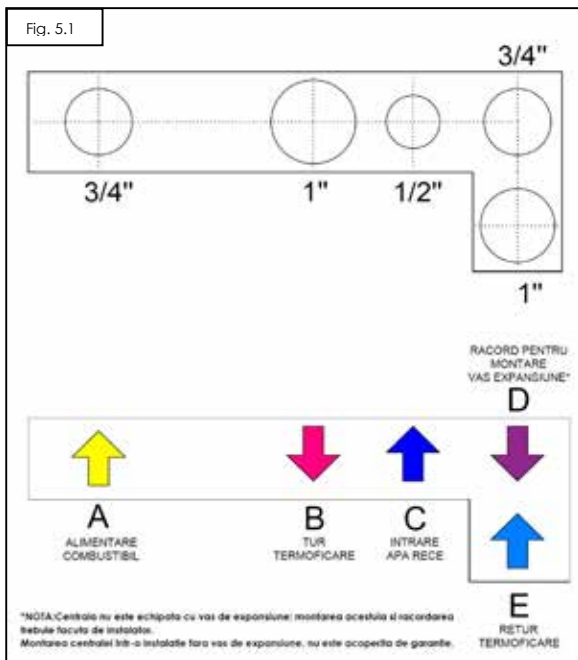
Caution!

The use of the boiler without thermal or partially filled agent is forbidden - danger of explosion;

The use of the boiler without being completely ventilated is forbidden!

5.4 Connecting the boiler to the domestic hot water circuit

The boiler is connected to the domestic hot water installation - through connections **C** (fig. 5.1.1).



Caution!

It is mandatory to install softener filters and a mechanical impurity filter on the cold water inlet connection.



Caution!

The cold water supply connection is only used for filling the district heating circuit. When the boiler is operating on district heating, the boiler filling valve must be closed.



Caution!

When installing the connection pipes, care must be taken not to strain them, in order to avoid leaks!

The occurrence of pressure shocks (supply pressures higher than 3-4 bar simultaneously with the actuation of the quick-closing valves) can affect the components of the hydraulic circuit inside the boiler. We recommend installing a pressure regulator! Damage to the boiler elements due to pressure shocks or the use of too much pressure on the cold water inlet circuit is not covered by the warranty! It is forbidden to install one-way valves on the cold water supply circuit. The cold water supply pipe of the domestic hot water preparation circuit will remain permanently open (the network is closed only through the taps

at the consumption points) to allow the expansion of this circuit to be taken over.

5.5 Condensate drain pipe connection



Danger!
Danger to life due to flue gas leaks!

The condensate drain pipe from the siphon must not be tightly connected to a sewage pipe, because otherwise the internal condensate siphon can be emptied by suction and the flue gases can enter the room where the boiler is installed.

The condensate resulting from the condensation of water vapor contained in the flue gases is discharged from the boiler, through the condensate drain siphon, which is located at the bottom of the boiler. As this condensation is acidic, having a pH of about 3.8 ÷ 5.4, the discharge must be made through a plastic pipe (flexible) with an inner diameter of at least Ø25 mm or more, which is connected at one end to the siphon hose and at the other end to a sewer pipe.

Before commissioning the boiler, approx. 1/2 liter of water through the flue gas connection (fig.5.2), in order to form a "water plug" in the siphon - thus preventing the flue gas from escaping into the room.

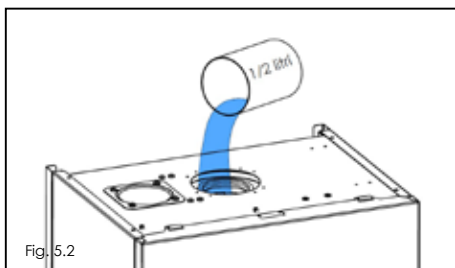


Fig. 5.2

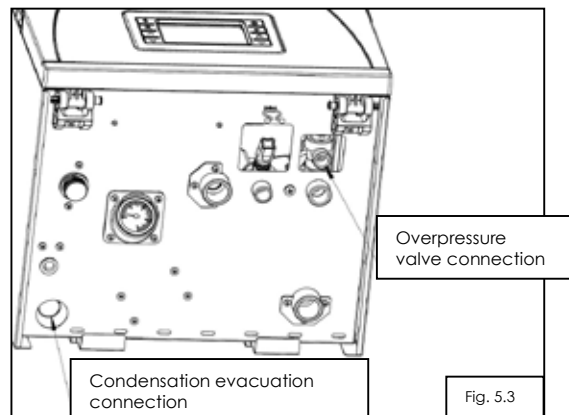


Fig. 5.3

The condensate evacuation route must be continuously descending (not to present possible areas of condensate stagnation, especially in the situation when it crosses areas with risk of frost).

The condensate drainage route must comply with the regulations in force regarding wastewater.

Recommended condensation removal methods:

The methods are presented below in the order in which they are recommended to be adopted depending on the possibilities offered by the mounting positions and the existing installation. As much as possible the condensate drain must be made so that the shortest path and gravitational flow are chosen. If there is a possibility, it is recommended to eliminate the condensation in the ground through a pipe provided with ventilation (figure 5.4). If this is not possible, the internal sewerage network can be used (fig. 5.5). Where neither of the first two cases is possible, a condensate pump can be used (Fig.5.6).

KÖBER SRL sells the CONLIFT 1 condensate pump, which can be purchased by the beneficiary from the KÖBER SRL sales department.

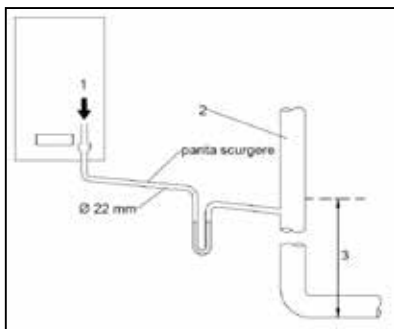


Fig. 5.4 – Condensation evacuation in ventilated soil

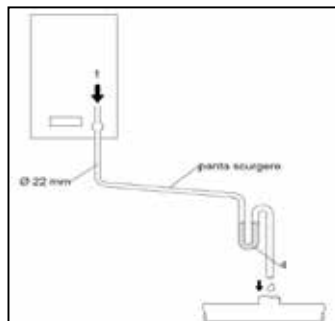


Fig. 5.5 – Condensation elimination in sewage

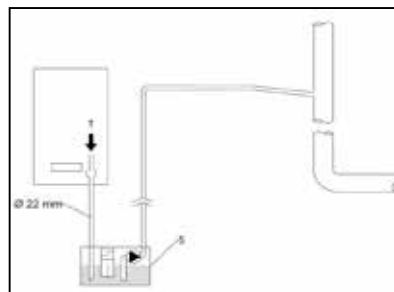


Fig. 5.6 – Condensation evacuation with condensation pump

Table 5.1 - Legend of figures 5.4 ÷ 5.6
1. Condensation siphon
2. Ventilation piping
3. Minimum 450 mm and maximum 3 floors of building
4. Hydraulic closure (swan neck)
5. Condensation pump



Caution!
In the areas where frost appears, the condensate evacuation is not done outside the building, which will lead to the blocking of the evacuation route and the flooding of the combustion chamber due to the frost.



Caution!
The absence of water in the siphon causes emanations of the smoke evacuated in the ambient air.

5.6 Safety valve connection



Caution!
Danger of scalding!

The discharge valve of the safety valve (fig. 5.3) is connected to a drainpipe to the sewer. Otherwise, there is a risk of flooding, which is not the responsibility of the boiler manufacturer.

5.7 Air / flue inlet / exhaust pipes

The boiler does not require air intake in the room in which it is installed. The air required for combustion for efficient operation is recommended to be captured from outside the building. The equipment is delivered for this purpose with a coaxial or dual flue gas supply / exhaust system called exhaust kit.

The equipment is delivered standard with coaxial exhaust kit. On request, however, it can also be delivered with a dual exhaust kit. It is also possible to order additional components such as elbows at 45 ° and 90 ° as well as extensions of 0.5m and 1m for both the dual system and the coaxial system.

5.7.1 Use of coaxial condensation kit (plastic inner tube) -fig.5.7

The coaxial intake-exhaust kit, fig.5.7 is delivered together with the boiler. The exhaust is made through a tube with a diameter of Ø60 mm, coaxial with the air intake tube with a diameter of Ø100 mm.

The connection is made as follows:

- all the gaskets are mounted in their own places.
- the end element (13) is fixed on the air / gas intake / exhaust piping.
- insert the gasket (11) for the interior on the piping.
- the piping is fixed on the elbow of the kit.
- glue the self-adhesive gasket (15), fix the elbow of the kit on the upper cover of the pressurized chamber with the screws (16).
- mount the gasket (11) for the exterior.

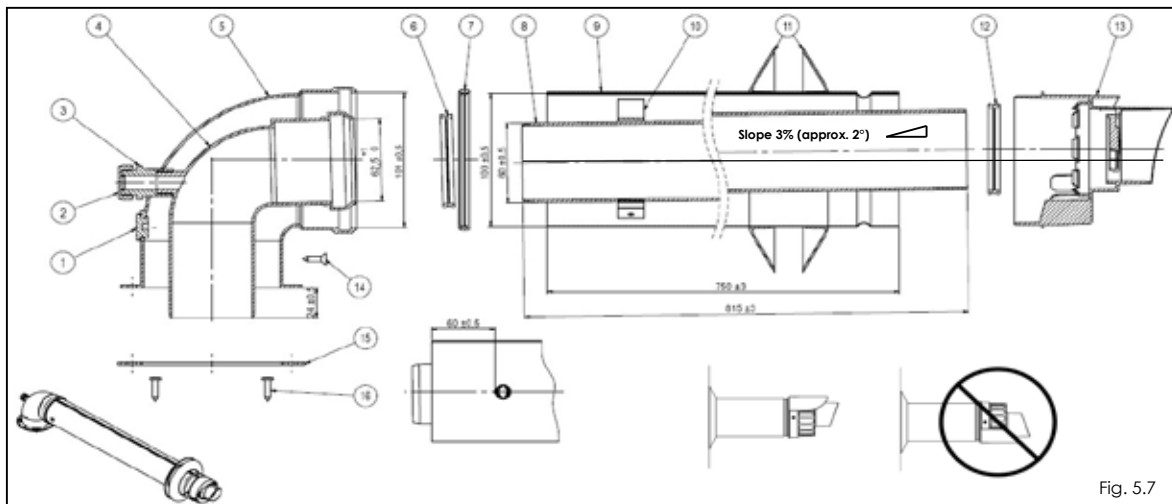


Fig. 5.7

Table 5.2 - Coaxial kit

Pos.	Pcs.	Name	Pos.	Pcs.	Name
1	1	Air intake plug	9	1	Air intake pipe Ø100mm
2	1	Gas outlet plug	10	1	Centering profile Ø60 - Ø 100mm
3	1	Gas outlet connector	11	2	Masking profile (through hole)
4	1	Flue gas outlet elbow Ø60 mm	12	1	Gasket Ø60mm
5	1	Air intake elbow Ø100 mm	13	1	Plastic terminal Ø60 - Ø 100mm
6	1	Gasket Ø60 mm	14	2	Self-tapping screw 4.2x16 mm
7	1	Gasket Ø100 mm	15	1	Fixing gasket 2mm
8	1	Flue gas exhaust pipe Ø60mm	16	4	Self-tapping screw 4.2x16 mm



Caution!
The kit must have a 3% (approximately 2 °) ascending slope on the exhaust side for condensate recovery, the slope is given by the position of the terminal.

- at the mounting position of the terminal, it must be similar to the one in figure 5.7. Mounting it in another position can lead to the accumulation of water from precipitation in the combustion chamber of the boiler.



Caution!
For easy installation of the kit it is necessary to lubricate the end of the elbow (4) at the entrance

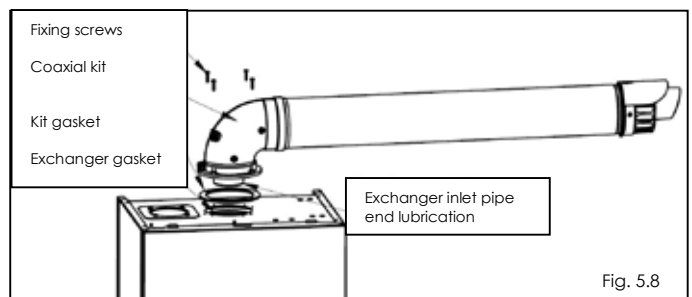


Fig. 5.8

to the boiler, use only standard commercial soap or water. Lubrication is required to prevent the exhaust gasket from moving on the main heat exchanger (fig. 5.8).

Never use lubricant based on mineral oils, they can damage the seals.

When installing the kit, make sure that the edges of the inlet pipe to the boiler are chamfered.



Caution!

It is mandatory to place the boilers in premises that have ventilation according to the norms in force. The technical instructions will be studied before mounting / installation, commissioning or service intervention.

For each additional elbow used, the maximum length of the intake / exhaust pipes is reduced (90 ° - 1 m elbow, 45 ° - 0.5 m elbow).

In no case will the total length of the coaxial kit, even with extensions, exceed the equivalent of 3 m (without the first elbow).



Danger!

It is forbidden to operate the boiler without air / gas intake / exhaust pipes, due to the fact that it endangers the life and health of people.

Risk of death by escaping flue gases.

Make sure that all measuring sockets on the exhaust kit are always closed.

The replacement will be made only by authorized personnel in accordance with the legislation in force, using original parts provided by the manufacturer.

5.7.2 Use of dual kit

The dual kit, fig. 5.9 is delivered only on request. The dual kit consists of two ducts: one for air intake and one for exhaust gases of the same diameter, Ø80mm, two 90-degree elbows and the corresponding gaskets.

The connection is made as follows (see figure no. 5.9):

- the gaskets pos. 1 and 10 are glued on the connectors pos. 2 and 9;
- fix the connectors, positions 2 and 9 on the upper part of the pressurization chamber with 4 screws each, position 3;
- position the masking profiles on the piping;
- the intake / exhaust pipes are fixed in connectors.

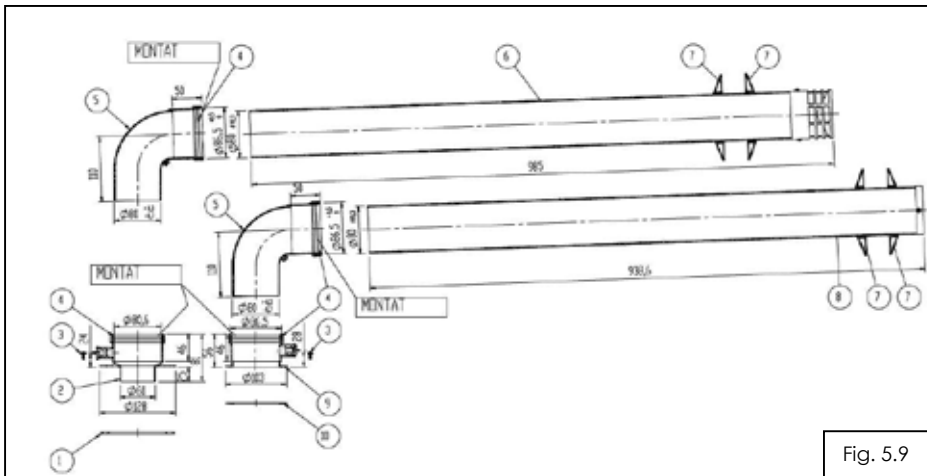


Fig. 5.9

Table 5.3 - Dual kit

Pos.	Pcs.	Name	Pos.	Pcs.	Name
1	1	Gasket	6	1	Exhaust pipe Ø 80 mm
2	1	Exhaust connector Ø 80 mm	7	4	Passage hole masking profile
3	8	Self-tapping screw Ø 3.9x9.5 mm	8	1	Air intake pipe Ø 80 mm
4	4	Gasket Ø 80 mm	9	1	Inlet connector Ø 80 mm
5	2	Elbow at 90 ° MF Ø 80 mm	10	1	Gasket



The dual kit will be mounted with the intake pipe with a downward slope of 3% (approximately 2 °) and the exhaust pipe with an ascending slope of 3% (approximately 2 °). It is mandatory to place the thermal boilers in premises that have ventilation according to the norms in force. The technical instructions will be studied before mounting / installation, commissioning or service intervention. For each additional elbow used, the maximum length of the intake / exhaust pipes is reduced (90 ° - 1 m elbow, 45 ° - 0.5 m elbow). In no case will the total length of the dual kit, even with extensions, exceed the equivalent of 5 m (without the first elbow).



Caution!

For easy installation of the kit it is necessary to lubricate the end of the connector (2) at the inlet part of the boiler, use only standard commercial water or soap. Lubrication is required to prevent the exhaust gasket from moving on the main heat exchanger.

Never use lubricant based on mineral oils, they can damage the seals.

When installing the kit, make sure that the edges of the inlet pipe to the boiler are chamfered.



Danger!

It is forbidden to operate the boiler without air / gas intake / exhaust pipes, due to the fact that it endangers the life and health of people.

The replacement will be made only by authorized personnel in accordance with the legislation in force, using

original parts provided by the manufacturer.

5.7.3 Use of vertical coaxial kit

The vertical coaxial kit, fig. 5.10 is delivered only on request. The exhaust is made through a tube with a diameter of Ø60 mm, coaxial with the air intake tube with a diameter of Ø100 mm. The connection is made as follows:

- all the gaskets are mounted in their own places;
- fix the intake tube (10) on the upper cover of the pressurization chamber with 4 screws, taking care that between the cover and the elbow kit to position the afferent gasket;
- it is fixed on the intake / exhaust pipes, taking care to position the afferent gaskets. Install the roof mounting kit (4).



Caution!

It is mandatory to place the thermal boilers in premises that have ventilation according to the norms in force. The technical instructions will be studied before mounting / installation, commissioning or service intervention.

In no case will the total length of the vertical coaxial kit, even with extensions, exceed the equivalent of 5 m.



Caution!

For easy installation of the kit it is necessary to lubricate the end of the exhaust pipe (6) at the inlet part of the boiler, use only standard commercial water or commercial soap. Lubrication is required to prevent the exhaust gasket from moving on the main heat exchanger.

Never use lubricant based on mineral oils, they can damage the seals.

When installing the kit, make sure that the edges of the inlet pipe to the boiler are chamfered.

Positio	PIECE	Name.5.
1	1	Flue gas exhaust pipe Ø 60 mm
2	1	Centering profile Ø 60/100 mm
3	1	Air intake pipe Ø 100 mm
4	1	Roof mounting kit Ø 60/100 mm
5	2	Gasket Ø 60 mm
6	1	Gas exhaust pipe Ø 60 mm
7	1	Gasket Ø 100 mm
8	1	Air intake pipe Ø 100 mm
9	1	Central fixing gasket Ø 100 mm
10	4	Self-drilling screw 4.2 x 16 mm
11	1	Flue gas outlet plug
12	1	Flue gas socket connector



Danger!

It is forbidden to operate the boiler without air / gas intake / exhaust pipes, due to the fact that it endangers the life and health of people. The replacement will be made only by authorized personnel in accordance with the legislation in force, using original parts provided by the manufacturer.

5.8 Connection to the electrical network



Danger!

Danger to life due to electric shock to electrical contacts!

The boiler must be connected to a single-phase network, provided with earthing, to ensure a stable voltage of 230 VAC +10% / - 15%, frequency 50 Hz, respecting the Phase-Zero polarity.

In order to ensure in operation a stable voltage of 230 Vac + 10% / - 15%, it is mandatory to install a SUPERVENTION FILTER type KLSP-03A brand KÖBER SRL. Any defect due to an overvoltage outside the range 230 Vac + 10% / - 15%, on installations where the OVERVOLTAGE PROTECTION FILTER type KLSP-03A brand KÖBER SRL has not been installed, is not covered by the warranty!

The leakage resistance of the earthing (earthing) must be in accordance with the regulations in force (maximum 4 ohms, and the working NUL must not have residual currents). It is recommended to supply the boiler from a separate circuit provided with fuses with 30mA differential protection. External connections must comply with current regulations. The connection to the electrical network of the building must allow complete electrical insulation of the boiler for the situations when an intervention is necessary for it.

The connection to the network is made by means of a plug mounted at the end of the 3x0.75 blue / brown / yellow-green three-wire cable, 2m, tight in bundles in the area of the boiler hydraulic group taking into account the color semantics as follows: Brown = phase, Blue = null, Green and yellow = grounding.

The power outlet must be accessible so that the user can easily remove the connector.

An electrical outlet for connecting a thermal boiler is compliant if:

- a) L = phase; N = null; G = grounding
- b) The voltage measured with the voltmeter on alternating current is: LN ~ LG = 230 Vac +/- 10%
- c) The voltage measured with the voltmeter is:

-for alternating current: NG < 10 Vdc;

-for direct current: NG = 0 Vdc

- d) Resistance measured between zero work and grounding: NG < 0.4 Ω



Caution!

It is not allowed to dredge the boiler in an installation without earthing or with faulty earthing.

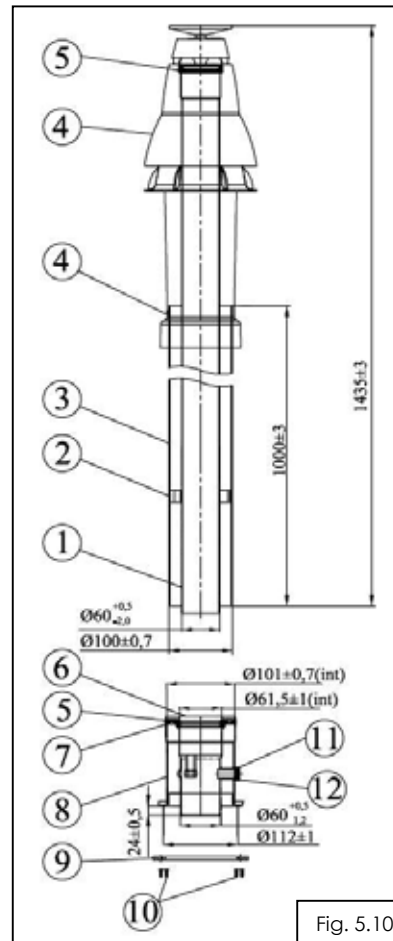


Fig. 5.10

5.8.1 Connecting an ambient thermostat or outdoor sensor

The procedure of coupling an ambient thermostat or an external sensor to the boiler can be done EXCLUSIVELY by the authorized personnel of the partner service companies approved by KÖBER SRL Vaduri Branch.

Mounting an outdoor sensor is only useful in the presence of an ambient thermostat.

It is recommended to use the KÖBER brand outdoor sensor, type KST-E-N10.

Technical specifications:

Model: KST-E-N10

Rated voltage: max. 5 Vdc

Maximum rated current: 18 mA

Resistance to 25 °C (R25): 10kΩ ± 5%

Constant β25 / 100: 3977 / 3988k ± 1%

Temperature range: -35 °C ... + 115 °C

By using a temperature sensor, the "climate compensation" function can be activated.

If the "climate compensation" function has been activated, then the temperature of the thermal agent is adjusted according to the climatic conditions outside, ensuring a high comfort and an energy saving.

Thus, if the outside temperature increases, the temperature of the heating medium decreases according to a "compensation curve" (fig.5.11).



CAUTION!

The maximum limit that the boiler will reach when heating must be set from the user interface (maximum desired temperature on the heating circuit)!

- Recommendation:**
- Circuit CH radiators Tset = 80 °C;
 - Circuit CH floor Tset = 45 °C.

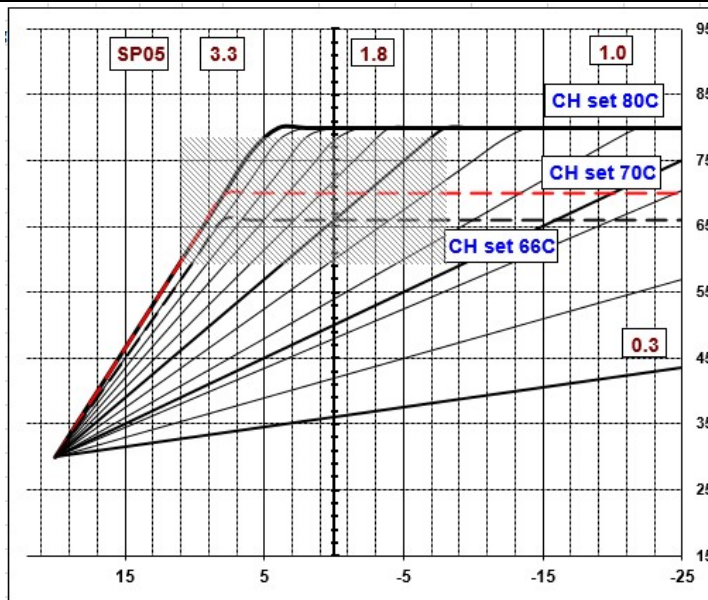
Table 1 - Use of external sensor on the CH radiator circuit.

SP05	3	6	8	10 RECOMANDED SET	12	15	18	21	24	27	30	33
T °C exterioroara	T °C tur incalzire obtinuta doar daca temperatura pe incalzire este setata din interfata utilizator (Tset CH=80°C)											
20	30	30	30	30	30	30	30	30	30	30	30	30
18	31	31	32	32	32	33	34	34	35	35	36	37
16	31	32	33	34	35	36	37	38	40	41	42	43
14	32	34	35	36	37	39	41	43	44	46	48	50
12	32	35	36	38	40	42	44	47	49	52	54	56
10	33	36	38	40	42	45	48	51	54	57	60	63
8	34	37	40	42	44	48	52	55	59	62	66	70
6	34	38	41	44	47	51	55	59	64	68	72	76
4	35	40	43	46	49	54	59	64	68	73	78	80
2	35	41	44	48	52	57	62	68	73	79	80	80
0	36	42	46	50	54	60	66	72	78	80	80	80
-2	37	43	48	52	56	63	70	76	80	80	80	80
-4	37	44	49	54	59	66	73	80	80	80	80	80
-6	38	46	51	56	61	69	77	80	80	80	80	80
-8	38	47	52	58	64	72	80	80	80	80	80	80
-10	39	48	54	60	66	75	80	80	80	80	80	80
-12	40	49	56	62	68	78	80	80	80	80	80	80
-14	40	50	57	64	71	80	80	80	80	80	80	80
-16	41	52	59	66	73	80	80	80	80	80	80	80
-18	41	53	60	68	76	80	80	80	80	80	80	80
-20	42	54	62	70	78	80	80	80	80	80	80	80
-22	43	55	64	72	80	80	80	80	80	80	80	80
-24	43	56	65	74	80	80	80	80	80	80	80	80
-25	44	57	66	75	80	80	80	80	80	80	80	80
-28	44	59	68	78	80	80	80	80	80	80	80	80
-30	45	60	70	80	80	80	80	80	80	80	80	80

Table 2 - Use of external sensor on the CH floor circuit.

SP05	1	5	10 RECOMANDED SET	15	20	25	30	33
T °C exterioroara	T °C tur incalzire obtinuta doar daca temperatura pe incalzire este setata din interfata utilizator (Tset CH=45°C)							
10	16	20	25	30	35	40	45	45
0	17	25	35	45	45	45	45	45
-10	18	30	45	45	45	45	45	45
-19	18	34	45	45	45	45	45	45

For example (the graph next to Fig. 5.14):
- if desired a maximum of 70 ° C for the CH in the interface of the user (red line on the graph) this can only be achieved if SP 05 > 6, for external temperatures of maximum -30 ° C (SP05 = 6 column of the table).



5.8.2 Connecting the sensor to the external boiler

The procedure for coupling the external boiler sensor to the boiler is made EXCLUSIVELY by the authorized personnel of the partner service companies approved by KÖBER SRL Sucursala Vaduri.

The sensor on the external boiler must be of the type:

Resistance to 25 ° C (R25): **10kΩ ± 5%**

Constant β_{25 / 100}: **3988k ± 1%**

5.8.3 Connecting the 3-way valve

The procedure for coupling the 3-way valve to the boiler is made EXCLUSIVELY by the authorized personnel of the partner service companies approved by KÖBER SRL Vaduri Branch.

Switching the three-way valve is done from the control panel by pressing the J1 key ()

5.9 Filling and emptying the installation



Caution!

The heating system must be washed before filling;

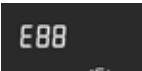
Do not use antifreeze or corrosive agents as an additive for heating water! The company KÖBER SRL – VADURI BRANCH does not assume responsibility for the damages caused by this.



Caution!

**The filling of the installation is done only with the fuel valve closed.
Danger of explosion when starting the boiler.**

When the boiler is switched on, the welcome message "OFF and 0.0bar" immediately followed by the entry of the boiler in



error E88 (0.5bar).

This will indicate the need to perform the PIF (Commissioning) operation by one of the service companies authorized according to the legislation in force and approved by us KÖBER SRL. For this, contact one of the partner companies within your domicile, indicated in the list inside the Warranty Certificate.

To perform the pressure tests by the installer, it is available to display the pressure on the analog pressure gauge mounted under the boiler.






Caution!

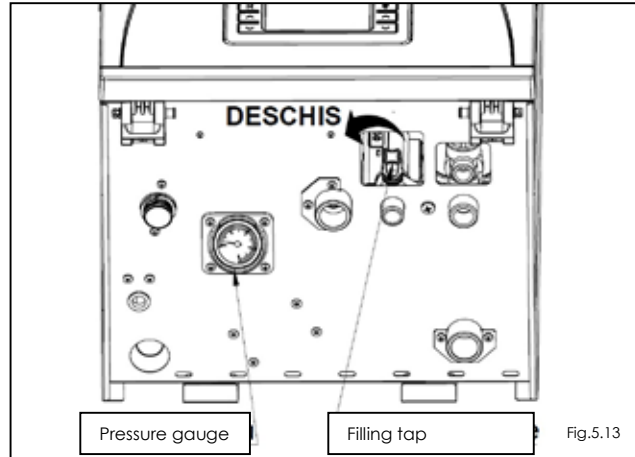
In order to grant the warranty, the removal of the boiler from error status E88 is allowed only to the personnel authorized and approved by KÖBER SRL.

To fill the installation, the following operations are performed:

To fill the installation, the following operations are performed:

1. the filling valve (fig. 5.13) of the boiler and those of the district heating / domestic water installation are opened;
2. the boiler is charged with a pressure around 0.8 bar, indicated on an analog manometer mounted at the bottom of the boiler ("below the boiler");
3. the pump aerator is opened;
4. **the boiler is supplied with electricity, and the boiler will automatically initiate the "self-ventilation" function on CH for 450 seconds if no key is pressed as follows: 30 seconds (pump ON), followed by 20 seconds pump OFF. The cycle is repeated 9 times;**
5. after performing the 450 second ventilation cycle, the tightness of the entire system is checked (if there are leaks, the problems are remedied);

6. the ventilation of the boiler is continued by manually activating the ventilation module, for activation long press the J1 key () and the pump will start, the boiler being in the OFF (Stand-by) state, for deactivation press the J1 key () or by starting the boiler from the J5 key -  (POWER);
7. the pump operating stage is adjusted according to the installation (see chap. 7.11);
8. the filling of the installation is continued, with the ventilation function turned up to 1.1-1.5 bar;
9. the tightness of the entire system is checked. If there are losses, the problems are remedied;
10. the radiators are ventilated;
11. 2-3 ventilation cycles of 50-60 seconds are performed until noises are heard in the installation, according to the steps described above;
12. check the pressure in the installation indicated on the display / manometer. If necessary, fill it with thermal agent, following the steps above.



* the figure is informative, the equipment of the purchased boiler may differ.



Caution!

Check the correct operation of the pump with non-fueled boiler.

Operation of the boiler with the pump blocked can lead to melting of the venturi tube, error or damage to the main boiler derailleur.

The operating condition of the pump is MANDATORY checked when starting up, with the front cover of the boiler removed, by checking the indication of the pump LEDs and activating the VENTILATION function.

If the VENTILATION function cannot be executed "LOCKED PUMP", then it is necessary to unblock the pump as follows (fig. 5.14):

- with the help of a straight-head screwdriver (6x1), remove the rotor screw, then unlock the rotor by turning left, right with a crosshead screwdriver (PH2).

After unlocking the pump rotor, continue with the correct ventilation of the installation, by performing the steps described above.



Indication!

Rules to reduce the risk of pump blockage:

1. When installing - Operate the pump min. ½ hours in maximum constant setting of the curve, to ensure that the rotor container is filled with water.
2. When commissioning - Make sure that the pump is operational for at least 30 minutes. every week or works continuously (until the heating system is fully put into operation, e.g. during construction)
3. Normal operation - During the summer, it is strongly recommended that the pump run for a period of time each week.



Caution!

Improper ventilation of the system can lead to melting of the venturi tube, error or irreparable damage to the main exchanger of the boiler.



Caution!

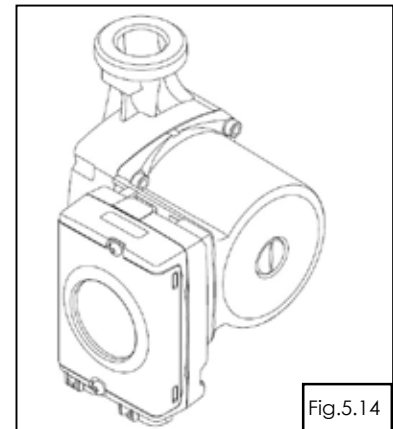
Switching on the boiler with air in the installation leads to irreparable damage to the main heat exchanger and the recovery exchanger (see fig. 5.12).

Failure to properly ventilate the installation will void the warranty.




Indication!

The recommended pressure on the district heating circuit is 1 ÷ 1.5 bar.



Emptying the boiler

Emptying the boiler involves the following:

- switch off the boiler from the J5 key -  (POWER) and disconnect the power supply, turn off the gas valve;
- close the tap on the district heating and cold water inlet;
- open the DHW valve (fig. 5.13) and a DHW consumption point.



Caution!

Danger of scalding when emptying the boiler.

6 OPERATING INSTRUCTIONS - USER INTERFACE

6.1 Control panel type LMC201

The LM201 control panel (fig.6.1) allows the visualization and modification of the parameters that define the operation of the boiler.

Is made of:

- 8 touch keys (J1 ÷ J8) - tab.6.1
- LCD type display, where the messages (graphic symbols) of communication with the control panel are displayed:
The meaning of the symbols and the display of the digits is presented in tab. 6.2.



Fig. 6.1 Control panel LMC201

Table 6.1: Control panel keys

Key	Annotation	Description:
J1		Switching operation in winter / summer; Activates / deactivates the central ventilation function (long press in standby mode)
J2		Resetting the electronic board from an error state; exit the installation menu
J3		Increase the temperature set in winter mode; navigation through the installation menu; increment value current parameter installation menu
J4		Decrease the temperature set in winter mode; navigation through the installation menu; decrement value current parameter installation menu
J5		POWER - Boiler start / stop
J6		Activating the comfort function
J7		Increase the temperature set in summer mode; navigation through the installation menu; increment value current parameter installation menu
J8		Decrement the temperature set in summer mode; navigation through the installation menu; decrement value current parameter installation menu

Table 6.2: Description of graphic symbols in the LCD display area

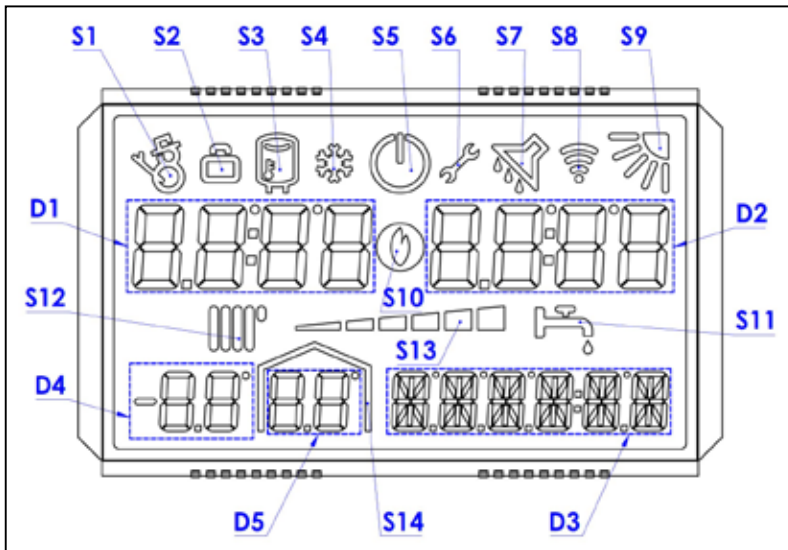


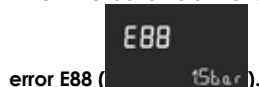
Fig. 6.2 Control panel LMC202 display

Key	Annotation	Description:
S1		Indicates whether the set operating mode is WINTER - active symbol
S2		Indicates the status of the "Vacation" function - active / inactive
S3		Indicates whether the DHW production mode is by boiler - active symbol
S4		Indicates the status of the "Antifreeze" function - active / inactive
S5		Indicates the status of the boiler (OFF = active symbol, ON = inactive symbol)
S6		Indicates that there was an unsaved change in the parameters in the EEPROM memory (flashes - in the SERVICE submenu); indicates the need to perform VTP (periodic technical check) (symbol flashes)
S7		Indicates the status of the "Comfort" Function - active / inactive
S8		Indicates serial communication status (RS232 with computer) - active / inactive
S9		Indicates whether the set operating mode is SUMMER - (active symbol)
S10		Displays the presence of the flame
S11		Indicates the operation of the boiler in DHW mode, flashes (DHW production)
S12		Indicates the operation of the boiler in AT mode, flashes (district heating)
S13		Indicates the modulation stage
S14		"HOME" symbol - active in the presence of the outdoor sensor connected to the control panel
D1		Displays temperature (° C), parameter values
D2		Displays temperature (° C), parameter index, error counter
D3		Displays the pressure in ex format. 1.5 bar, other texts ("On", "OFF", "HELLO" etc.)
D4		Displays outdoor temperature (° C) - active in the presence of the outdoor sensor
D5		Displays indoor temperature (° C) - active in the presence of indoor temperature sensor - in correlation with the S14 symbol

6.2 Description of functions and graphical contexts displayed by LMC1X control panel

6.2.1 Graphic context - Display error E88

When the boiler is switched on, the welcome message "OFF and 0.0bar " immediately followed by the entry of the boiler in





This will indicate the need to perform the PIF (Commissioning) operation by one of the service companies authorized according to the legislation in force and approved by us KÖBER SRL. For this, contact one of the partner companies within your domicile, indicated in the list inside the Warranty Certificate.

To perform the pressure tests by the installer, it is available to display the pressure on the analog pressure gauge mounted under the boiler.

In order to grant the warranty, the removal from error E88 is allowed only to the personnel authorized and approved by KÖBER SRL.

Immediately after removing from error E88, if the installation is loaded at over 0.7 bar, then the "self-ventilation" function on CH will be automatically initiated for 450 seconds as follows: 30 seconds (pump ON), followed by 20 seconds pump OFF. The cycle is repeated 9 times.

The self-ventilation function can be interrupted by pressing the J1 key ().

6.2.2 Graphic context – boiler start

When connecting the boiler with electricity, the boiler is in an intermediate state for 5 seconds, which is necessary to initialize the system, and the display shows the message "OFF" and "0.0 bar". From the point of view of the user interface, there are two different modes of operation that depend on the state of the control panel:

- the boiler is in the "ON" state before disconnecting the board from the network;
- the boiler is in the "OFF" state before disconnecting the board from the network.

Regardless of the state of the boiler, the welcome message "OFF" and "0.0 bar" will be displayed on digits D2 (see figure 6.2.1);



Figure 6.2.1

6.2.3 LIGHT function

The control panel display is permanently illuminated, by pressing any key (both in stand-by mode or operating mode) the light intensity on the display increases for a better view of the display.

6.2.4 Graphic context - Standby state (OFF / OFF)

This context is associated with an inactive / standby state of the boiler. In standby mode, all actuation / status elements are inactive and any combustion request is ignored.

Exception to this rule: the antifreeze function (generated by a water temperature in the installation lower than 8 ° C, detected by the district heating flow sensor) which will initiate a combustion cycle to prevent the freezing of the thermal agent in the installation - the activation of the function is signaled by the appearance of the S4 symbol () on display;

Entering and exiting this mode is done by pressing the J5 key - (POWER) for at least one second. Switching between the two context menus also sets the control panel status from OFF to ON. J5 key - (POWER) is active in any other context menu to facilitate the forced shutdown of the boiler in case of abnormal operation.

Possible actions:

- POWER - switching between ON / OFF state;
- RESET - used to reset any errors.

- **Automatic ventilation**- it is activated automatically when switching on (if the installation is loaded at over 0.7 bar), the boiler must be in OFF mode; to deactivate, press and hold J1 ();

Manual ventilation- to activate / deactivate long press the J1 key ();

- **Holiday function**- it is activated by long pressing the J1 + J4 keys. The activation of the function is signaled by the appearance of the symbol S2 (), in this way the boiler will provide thermal agent at a temperature of 45 °C.
- **Comfort**- the J6 key is pressed briefly - the activation of the function is signaled by the appearance of the S7 symbol () on display;

- **VTP (periodic technical check)**- is signaled by the appearance of the S6 symbol () which flashes together with the message OFF (activates automatically every 2 years (+/- 2 weeks)). It is deactivated by long pressing the J1 keys () and J5 ().

Figure 6.2.2 is an example of a standby display (pressure on the district heating system 1.5 bar)

6.2.5 Graphic context - standby status (ON / ON)


Switching to ON mode is done by long pressing the J5 key - (POWER).



The standby state is associated with a state of operation of the boiler but in which no request for combustion occurs. In this state, all boiler actuation / condition elements are active and any combustion request is accepted, if no error is present. In this state the user can view all the information about the control panel and make the desired settings, respectively.


Operating modes:

Summer operation mode - switching to winter / summer mode is done by pressing the J1 key - the S9 symbol appears () at the top right of the display

The temperature set on the DHW is displayed on the large digit group on the right (D2) when the boiler is in a standby state. Increasing / decrementing the desired domestic hot water temperature is done in keys J7 and J8.

When the domestic hot water demand is active, the symbol is active **S11** () it will flash and the measured domestic hot water temperature will be displayed in the group of large digits on the right (D2).

The symbols are also activated **S10** () - the presence of the flame and **S13** () - boiler modulation. Figure 6.2.3 is an example of display in summer mode (set temperature is 45 ° C and pressure on the district heating system 1.5 bar, and there is no demand for DHW)

Operating mode - winter - switching to winter / summer mode is done by pressing the J1 key - the symbol S1 appears () **at the top left of the display**

The temperature set on CH is displayed on the group of large digits on the left (D1) when the boiler is in a standby state. Incrementing / decrementing the desired temperature on the district heating circuit is done from keys J3 and J4.



When the heating request is active the symbol **S12** () it will flash and the measured temperature of the heating medium will be displayed in the group of large digits on the left (D1).


Figure 6.2.4 is an example of display on CH mode (temperature set on CH is 60 ° C, temperature set on DHW is 45 ° C and pressure on the district heating system 1.5 bar, and no heating request is active)

Active functions in ON mode:

- POWER - switching between ON / OFF state;
- RESET - used to reset any errors;

- J3 key () - selects the WINTER / SUMMER operating mode;

- Antifreeze - activates automatically when the temperature on the flow temperature sensor reaches 8 ° C - activation of the function is signaled by the appearance of the symbol **S4** () on display;

- Boiler operation (accumulation / preparation) - is activated from the service parameters and is signaled by the appearance of the **S3** symbol ();

6.2.6 Graphic context - error status

The display of an error is associated with a fault / error status of the boiler. There are 3 different types of errors:

- critical errors: these errors immediately stop all execution elements and the system crashes. Output from a critical error state is reset;
- Normal errors: These errors prevent combustion requests. Exiting a normal error state is done by resetting;
- information errors: these errors do not stop the operation of the boiler and are only displayed. Exiting an information error state is done automatically, when the cause of the error disappears.

Exiting the error state is done by pressing the J2 key (**R**).



In this context, the display flashes a message represented by the error code.


Possible actions:

- RESET - critical or normal error reset;

Figure 6.2.5 is an example of displaying some error (in this case E20).

6.2.7 Graphic context - HOLIDAY submenu


The Holiday function can be activated / deactivated by long pressing the J1 keys () and J4 (), **the boiler being in the OFF state.**

If the HOLIDAY function is activated, the symbol **S2** appears on the display (), the boiler no longer takes into account the temperature set on heating mode, in this way the boiler will provide thermal agent at a temperature of 45 ° C.

The heating cycle starts at 39 ° C and stops at 50 ° C. This function cannot be active at the same time as the Comfort function. The Comfort function has priority.


6.2.8 Graphic context - COMFORT submenu

The COMFORT function can be activated / deactivated by pressing the J6 key (), **the boiler being in the OFF state.**

If the COMFORT function is activated, the **S7** symbol appears on the display (), by means of this function the boiler starts when the domestic hot water temperature is equal to the set DHW temperature; the boiler stops when the domestic hot water temperature is 8 ° C (fixed value) higher than the set DHW temperature. If the water thus heated is not consumed for one hour, the COMFORT function is automatically deactivated.

6.2.9 Graphic context - Activation of the VTP function - Periodic Technical Verification

The VTP function - Periodic Technical Verification is activated automatically every 2 years (+/- 2 weeks).


The **S6** symbol will flash on the display near the VTP date () SERVICE and if the boiler is in standby, the message "OFF" will also flash.

In order to keep the warranty, please call the service company that performed the commissioning, in order to carry out the obligatory technical revision of VTP type.

The mandatory technical revision of VTP type is regulated by the specific ISCIR legislation and is not settled by KOBER SRL or by the service partner company.

If you do not carry out the mandatory technical inspection of VTP type on time (every 2 years days +/- 2 weeks), in order to protect the thermal boiler from possible defects that are not covered by the warranty (clogging of heat exchangers and recuperators that can lead to their irremediable cracking; deposits inside the pump that can lead to its irreparable damage, etc.), then the specific power of the boiler will be diminished by 20-25% of the maximum set on CH and DHW, and the boiler will no longer work in maximum capacity.

6.2.10 Graphic context - SERVICE submenu

In the SERVICE submenu (signaled by the appearance of the S6 SYMBOL ) , different control parameters of the control panel can be viewed / modified / checked (SP - service parameters, Co - command buffer - contains two SAVE and CLEAR commands, EI - information elements buffer, SI - sensor information buffer, HP - parameters statistics, EC - error counters).

Access is allowed only to the authorized service company.

7 START-UP AND USE OF THE BOILER



Danger!

Commissioning work is only allowed to the technician and service companies authorized according to the legislation in force and approved by us KOBER SRL.

In order to benefit from all the functions of the boiler for as long as possible, it is recommended to carry out all the works described below.



Danger!

Danger to life due to electric shock to electrical contacts!

7.1 Commissioning works

For commissioning works, the following steps must be completed:

Tab. 7.1 Operating steps for commissioning		
Nr.	Working stage	Made by:
		At commissioning (PIF)
1.	Checking the connection of the air / gas intake / exhaust kit	•
2.	Measurement of power supply parameters	•
3.	Checking the boiler connection to the mains	•
4.	Checking the pressure in the diaphragm expansion vessel	•
5.	Check the presence of the magnetic filter on the return of the installation Check the presence of softener filter + impurities filter on the domestic hot water inlet circuit	•
6.	Filling and emptying the heating system	•
7.	Gas supply	•
8.	Starting the boiler	•
9.	Adjusting the fuel mixture and quantity	•
10	Measurement of static pressure and dynamic gas supply pressure	•
11	Maximum power adjustment on CH and DHW depending on the installation	•
12	Adjusting the pump speed depending on the installation required (from the factory set to 5m)	•
13	Setting additional functions	•
14	Installation of the room thermostat and the outdoor sensor	•
15	Checking the safety elements	•
16	Exhaust system leak test	•
17	Checking the tightness of the gas path	•
18	Switching off the boiler safely	•
19	User training	•

7.2 Starting the boiler


7.2.1 Starting the boiler

To start the boiler, press the J5 key  (POWER) fig.7.5.



Fig. 7.5 Control panel LMC201

Choice of operating mode in winter (district heating circuit) / summer (coil boiler with "sensor" control element)

By pressing the J1 key () you can change the operating mode from winter (district heating circuit) / summer (boiler with coil controlled by an external 3-way valve) and vice versa. This is shown on the display, the S1 / S9 symbol will be activated.

7.2.2 Heating operation

The boiler works in this way only when the "winter" season is selected.

To select the type of heating system (floor or radiators), parameter SP: 01 will be set to 0 or 1;

- **Parameter SP: 01 = 0** - heating by radiators;
- **Parameter SP: 01 = 1** - underfloor heating.



The heating demand occurs when the district heating temperature sensor measures a temperature of 6 °C - for radiator heating or 5 °C - for underfloor heating, lower than the temperature on the set district heating. At the same time, the heating demand stops when the district heating temperature sensor measures a temperature of 4 °C - for heating with radiators or 5 °C - for underfloor heating, higher than the set heating temperature, the circulation pump will run continuously.

If an ambient thermostat is connected to the electronic board, the boiler operates in district heating mode only when the ambient temperature is lower than the one set in the ambient thermostat. Otherwise, the operation of the district heating boiler is inhibited.

Temperature control on the district heating circuit - symbol S1 () is displayed.

The temperature set on district heating is displayed on the group of large digits on the left (D1) when the boiler is in a standby state. Incrementing / decrementing the desired temperature on the district heating circuit is done from keys J3 and J4.

When the district heating request is active the symbol S12 () it will flash and the measured temperature of the heating medium will be displayed in the group of large digits on the left (D1).

The symbols are also activated S10 () - the presence of the flame and S13 () - central modulation.

7.2.3 Domestic hot water operation through the boiler (see chap. 10.5 "Operating diagrams")

To use a coil boiler, it is necessary to install a 3-way external valve connected to the boiler.

The boiler can operate in this way for both seasons ("Winter" and "Summer"). The heating demand in DHW mode by boiler is a priority of the heating demand in district heating mode.

SP parameter: 02 (type of heating system) dictates the operation of the boiler with external boiler, as follows:

- **PARAMETER SP: 02 = 0** - the boiler will only operate in district heating mode when this configuration is set.
- **PARAMETER SP: 02 = 1** - the boiler works in district heating and DHW mode by boiler.

The activation of the control element of the switching from district heating to DHW mode through the boiler is done through the parameter SP: 04 (number of temperature sensors on the external boiler) as follows:

- **Parameter SP: 04 = 0** - the boiler will only work on district heating, no control element is activated.
- **Parameter SP: 04 = 1** - activates the temperature sensor on the boiler as a control element for switching from district heating to DHW mode through the boiler.

Temperature regulation on the boiler circuit with coil - symbol S9 () is displayed

Setting the temperature of the water stored in the boiler - can only be done after connecting the sensor on the boiler to the boiler (see chap. 5.9.3)

Setting the temperature of the water stored in the boiler is done using the keys J7 and J8. Press the J7 key to increase the temperature, respectively the J8 key to decrease the temperature;

- The boiler will start when the value of the water temperature detected by the sensor on the boiler is lower than the value set by the user on the DHW + the value given by the service parameter (SP: 21) + 6 °C.

- The boiler stops when the value of the water temperature detected by the sensor on the boiler is higher than the value set by the user on the DHW + the value given by the service parameter (SP: 22) + 7 °C.

After reaching the value set by the user, the boiler pump continues to operate for a period of time (indicated by parameter SP: 17).

Notes: Because the temperature sensor is positioned at 1/3 of the top of the boiler, the temperature may differ from the temperature set by the user.

For increased comfort, it is recommended to use this boiler together with the BP120L boiler with built-in mixing valve, where the domestic hot water temperature is constant throughout the use, being independent of flow variations (see chapter 10.5 "Operating diagrams").

To use the BP120L boiler with built-in mixing valve, service parameters must be set as follows: SP: 21 = 13, SP: 22 = 15.

In boiler mode, the boiler will supply coil heat by default at a temperature of 70 °C. In case of continuous operation of the boiler at minimum capacity, in DHW mode, the boiler water temperature can exceed the value of 70 °C. Therefore, for safety reasons, the burner is switched off (the gas valve will be closed) when the water temperature in the boiler reaches 73 °C (fixed value); the circulation pump will continue to operate. A new ignition will occur after the water temperature drops below 70 °C. The ANTILEGIONELLA function is activated automatically. This means that the temperature of the water in the boiler is maintained at a high temperature for one hour, once every week.

7.3 Preset boiler safety functions

1. Frost protection function. If the water temperature in the installation drops below 9 °C, the system starts heating at minimum load until the temperature reaches 30 °C.

2. Post-circulation pump function on domestic hot water and heating. The post-circulation cycle starts only if the system is not in the BURN state.

The post-circulation cycle - district heating operation - starts (the pump switches to the ON state) if:

- the heating temperature exceeds the preset threshold (approx. 90 °C).

The post-circulation cycle ends if:

- the temperature on the district heating is below the predetermined threshold (approx. 80 °C);

The post-circulation cycle - DHW operation - starts (the pump switches to the ON state) if:

- the heating temperature exceeds the preset threshold (approx. 80 °C).

The post-circulation cycle ends if:

- the temperature on the district heating is below the predetermined threshold (approx. 75 °C);

Benefits:

a) prevents the water from standing at high temperatures in the heat exchanger. In this way the limestone deposits are significantly reduced.

b) the boiling of the water in the heat exchanger in the post-heating interval is prevented.

These advantages result in the protection of the heat exchanger.

3. Three-way pump and valve anti-lock system.

If the boiler has not performed any combustion cycle for 24 hours, the pump is put into operation for a long time **12 seconds** to avoid blocking it. During this time, the three-way valve is also activated and deactivated.

4. Post-ventilation

After each shutdown of the boiler, the fan remains in operation for a period of time, in order to completely evacuate the flue gases from the boiler and with them, the water vapor they contain. In this way it protects both the electric control circuit of the fan and the primary heat exchanger, which cools partially.

5. "Legionella" bacteria prevention function

This function is active for the operation mode of the boiler with DHW storage boiler.

When preparing DHW in the boiler, the ANTILEGIONELLA function is automatically activated. This function means that, once a week, for one hour the water temperature in the boiler is maintained at 65 °C.

6. Self-ventilation function

This function will be activated whenever the boiler is switched off and switched on again (intentionally by the user, or unintentionally by voltage drops) for 100 seconds. The function will be activated only if at the moment of interruption of the power supply, the boiler is in the OFF state and the pressure condition is met (min. 0.7bar).

7.4 Switching off the boiler safely

If the end user finds that the device has an abnormal operation, if the error codes are displayed repeatedly, or if the manifestations of the control panel exceed its comprehension power, he has the obligation to stop the operation of the control panel as soon as possible and in conditions maximum safety. For this the user must perform the following operations:

- press the POWER key and interrupt the operation of the boiler;

- the boiler is disconnected from the electricity supply circuit by removing the plug from the socket (when applicable);

- the fuel supply circuit is interrupted by closing the gas valves;

- the circulation of the domestic water and of the heating water is interrupted by closing the taps corresponding to these circuits;

After shutting down the boiler in maximum safety, the user will contact the service company within its reach.

7.5 User training

It is mandatory that during the commissioning the specialized provider to instruct in detail the beneficiary in connection with the following aspects:

A. The procedure for starting and stopping the thermal boiler in safe conditions by mainly checking the following elements:

- electricity supply;
- fuel supply (gas);
- power supply and charging of the district heating circuit;
- the filling valve must be closed;
- pressure in the installation by reading the manometer (1.5 ÷ 2bar);
- the taps on the domestic water circuit should be open.

B. How the boiler works and possible problems that may occur. The meanings of each key or indicator on the control panel will also be explained.

C. The beneficiary is warned that a decrease in water pressure in the system is caused by a loss of heat that must be remedied before using the boiler again.

D. It warns about the works undertaken at the air / gas intake / exhaust system. Pay special attention to the fact that their modification is forbidden.

E. It is recommended that the beneficiary resort at least once a year to the verification of the operation of the boiler by an authorized person.

F. Warnings about precautions to be taken against frost.

G. The user manual of the boiler is delivered.

At the end of the instruction, a commissioning report is signed (tab.4.1), in which he signs that he has mastered the correct way of using the thermal boiler. This form is also signed by the authorized person who performs the commissioning, who has trained.

The person who performs the commissioning has the right to refuse the commissioning of the boiler, if irregularities are found and he will not complete the commissioning sheet until their remediation.

7.6 Quality and warranty conditions

Trading company **KÖBER SRL - VADURI BRANCH** as a manufacturer, guarantees the proper operation of the boiler if the conditions of installation, commissioning, use and periodic technical revision established in the previous chapters and in the "warranty certificate" granted by the manufacturer / sales company approved and concluded upon commissioning with the beneficiary are ensured.

Commissioning, periodic overhauls and warranty interventions are made only by companies approved by the manufacturer, otherwise the product warranty is lost! The simple purchase of the product does not oblige the manufacturer to grant the guarantee!



Caution!

Failure to comply with these conditions will void the warranty.

The warranty does not cover:

- defects that cannot be attributed to the manufacturer, caused by constructive deficiencies of the installations to which the thermal boiler is connected, and which are the responsibility of the utility providers: the running water supplier; gas supplier; electricity supplier;
- defects due to improper assembly and commissioning (on other gas categories, other hydraulic operation schemes or other flue gas intake-exhaust configurations than those authorized);
- malfunctions due to improper use by the user;
- inadequate storage conditions until commissioning and after;
- installation or commissioning on water supply installations or district heating installations that are not of adequate quality;
- installation or commissioning on another gas category than the authorized one, specified in table 2.2;
- inadequate mounting conditions, including defects due to freezing of the installation, deposition of impurities, stone, etc. ;
- defects due to improper filling, failure to unblock the circulation pump, failure to properly ventilate the installation;
- faults caused by a faulty power supply, lack of earthing or voltage fluctuations from the power supply network;
- faults due to natural electrical phenomena (lightning).

8 INSPECTION AND MAINTENANCE

8.1 Inspection and maintenance intervals

The mandatory periodic technical verification at 2 years (VTP) will be made according to the legislation in force.

During the warranty period of the boiler, the mandatory periodic technical verification at 2 years (VTP) will be made by companies approved by KÖBER SRL - SUCURSALA VADURI.

Specifically, in condensing boilers, in the by-products resulting from combustion and from the heat recovery of the flue gases, acids and oxides are formed which are deposited on the outside of the heat recuperator and on the resulting condensate evacuation path.

In order not to lose the guarantee, but also to benefit from the safety in operation, reliability and long life of the product, please make the annual inspection of the boiler, through a service company authorized and approved by KÖBER SRL - VADURI BRANCH.

That is why we recommend you to conclude a maintenance and service contract with a service company authorized and approved by KÖBER SRL - VADURI BRANCH.

It is recommended that the periodic technical inspection be done before the arrival of the cold season when the boiler will be used at maximum capacity.



Danger!

Inspection, maintenance and repair works are allowed only to the technician authorized and approved by KÖBER SRL - VADURI BRANCH. Failure to perform the inspection / maintenance can lead to material damage and personal injury.

injury.



In order to benefit from all the functions of the boiler for a long period of time, it is recommended to use original spare parts.

**Caution!**

Near the VTP date, the icon will flash on the display () SERVICE and if the boiler is in standby, the symbol "will be displayed intermittently" **bar**".

In order to keep the guarantee, please call the service company that performed the commissioning, in order to carry out the obligatory technical revision of VTP type.

The obligatory technical revision of VTP type is regulated by the specific ISCIR legislation and is not settled by KOBER SRL or by the service partner company.

If you do not carry out the mandatory technical inspection of VTP type on time (every 2 years days +/- 2 weeks), in order to protect the thermal boiler from possible defects that are not covered by the warranty (clogging of heat exchangers and recuperators that can leads to their irreparable cracking; deposits inside the pump that can lead to irreparable damage to it, etc.), then the specific power of the boiler will be decreased by 20-25% of the maximum set on CH and DHW, and the boiler will no longer function at maximum capacity.

8.2 Maintenance works

Periodic maintenance works consist of a package of operations (described in table 8.1). Details of the manner of carrying out these operations are described in the service manuals addressed to the service companies authorized and approved by KÖBER SRL - VADURI BRANCH.

Nr.	Working stage	Made by:	
		General at PIF and regular interventions	When required
1.	Disconnecting from the mains and closing the gas supply	•	
2.	Closing the connection valves with the installation; boiler depressurization and emptying, if applicable	•	•
3.	Checking and cleaning the main heat exchanger	•	•
4.	Checking the ignition / ionization electrode	•	•
5.	Checking the pressure in the expansion vessel on the district heating system	•	•
6.	Checking the connections on the district heating circuit and on the domestic hot water circuit	•	
7.	Checking and cleaning the condensate siphon	•	
8.	Checking the safety elements	•	
9.	Checking the electrical connections	•	
10.	Checking the tightness of the pipes and the gas valve	•	
11.	Checking the shut-off function of the gas valve	•	
12.	Checking the exhaust system	•	
13.	Checking the control devices (room thermostat, external sensor) if necessary	•	
14.	Replacement of sealing elements (O-rings and gaskets). They are not covered by the warranty, they are considered consumables.	•	

9 DESCRIPTION OF THE ERRORS AND THE WAY OF TROUBLESHOOTING THEM

Possible system errors are indicated by the following codes that appear on the display. The significance of the error signals that appear on the display is explained in table 9.1.

Note:

- I - information errors: these errors do not stop the operation of the boiler and are only displayed;
- N - normal errors: these errors prevent combustion requests;
- C - critical errors: these errors immediately stop all execution elements and the system crashes;
- Errors that depend exclusively on the DHW circuit (E36-E38, E46-E48) are considered informative if operated on the AT circuit or normal if operated on the DHW circuit.

Table 9.1

Code	Class	Non-volatile	Meaning	Reset mode
E01	C	YES	The quality of the electricity supply is not in the parameters; The connection between the electronic board and the power socket is not correct, generating imperfect contacts.	SELF-RESETTABLE when the cause disappears
E02	C	NOT	Failure condition of the electronic board due to electromagnetic interferences on the external electrical system of the boiler supply. On the same electrical circuit with the boiler there are consumers generating such interferences: washing machine, air conditioners or other household appliances. Failure condition of the electronic board due to excessive humidity inside the electronic box (environmental conditions for boiler installation are not observed).	SELF-RESETTABLE when the cause disappears
E04	C	NOT	Interrupting the ribbon cable between the electronic board and the display; Locking the keys on the display (manually or mechanically locked keys under the display foil). Any key if pressed for more than 17 seconds the display enters error E04.	SELF-RESETTABLE when the cause disappears
E06	C	NOT	Frequent reset of the electronic board. In 3 hours more than 75 auto resets, due to the fact that the power supply is not in parameters.	manually resettable from the RESET key
E07	N	NOT	Alteration of EEPROM manufacturer and / or installer parameters, due to inadvertent communication between processors.	manually resettable from the RESET key
E08	C	YES	-alteration of the EEPROM parameters of the installer as a result of an incorrect connection on the 230Vac supply circuit between the electronic board and the power supply socket or other field element, supplied at 230Vac, from the boiler.	manually resettable from the RESET key
E10	N	NOT	The water pressure in the system is less than 0.8 bar (due to specific causes of the district heating installation); The water pressure in the system is higher than 3.5 bar (due to specific causes of the district heating installation); Pressure sensor power cable with imperfect or broken contact; Incorrect pressure sensor signal (decalibration).	SELF-RESETTABLE when the cause disappears
E11	N	YES	Rapid increase in outlet water temperature (low flow or pump blocking - for flowswitch)	SELF-RESETTABLE when the cause disappears
E13	N	NOT	-too large CH flow / return temperature difference, caused by: air in the installation; CH flow too low; low pressure in the installation; defective temperature sensor.	manually resettable from the RESET key
E15	N	YES	No water flow signal when the boiler pump is activated <u>Not applicable in this case</u>	manually resettable from the RESET key
E20	C	YES	Lack of flame (ignition failed after 3 ignition attempts), caused by: -problems on the gas supply network: lack of gas; low gas pressure in the network; gas meter / network regulators defects; the presence of condensation (water) in the flue gas; -problems at the elements in the internal combustion circuit of the boiler: connections / electrodes / ignition transformer / board; Condensation specific: problems on the condensate drain circuit.	manually resettable from the RESET key
E22	C	YES	Fault in the flame detection phase, invalid ionization current signal.	manually resettable from the RESET key
E23	C	YES	Existence of ionization current outside the combustion cycle.	manually resettable from the RESET key
E25	C	YES	Variations in the supply voltage / interruptions / gaps / frequency variations greater / less than the standard ones can lead, depending on the state of the boiler, to its permanent blocking in error E25.	manually resettable from the RESET key
E26	C	YES	Flue gas problems: incorrectly mounted kit; with incorrect length or slope; Activating the overtemperature thermostat; Defective overtemperature thermostat.	manually resettable from the RESET key

Code	Class	Non-volatile	Meaning	Reset mode
E30	N	YES	Flue gas temperature sensor defective Condensate drainage problems	manually resettable from the RESET key
E31	N	NOT	Defective heating flow sensor	SELF-RESETTABLE when the cause disappears
E32	and	NOT	Defective heating return sensor	SELF-RESETTABLE when the cause disappears
E35	and	NOT	External temperature sensor defective	SELF-RESETTABLE when the cause disappears
E36	N, I	NOT	DHW temperature sensor defective	SELF-RESETTABLE when the cause disappears
E37	N, I	NOT	Defective boiler temperature sensor 1 <u>Not applicable in this case</u>	SELF-RESETTABLE when the cause disappears
E38	N, I	NOT	Defective boiler temperature sensor 2 <u>Not applicable in this case</u>	SELF-RESETTABLE when the cause disappears
E40	N	YES	The flue gas temperature is too high (condensing boilers only), above 95 ° C.	manually resettable from the RESET key, when the cause disappears
E41	N	NOT	The temperature of the thermal agent on the AT flow is too high / low (above 90 ° C / below -10 ° C).	SELF-RESETTABLE when the cause disappears
E42	and	NOT	The return heat agent temperature is too high / low (above 90 ° C / below -10 ° C).	SELF-RESETTABLE when the cause disappears
E45	and	NOT	External temperature too high	SELF-RESETTABLE when the cause disappears
E46	N, I	NOT	DHW temperature too high / low (above 82 ° C / below -10 ° C).	SELF-RESETTABLE when the cause disappears
E47	N, I	NOT	The temperature indicated by boiler sensor 1 is too high / low (above 82 ° C / below -10 ° C). <u>Not applicable in this case.</u>	SELF-RESETTABLE when the cause disappears
E48	N, I	NOT	Temperature outside the limit of the combustion chamber safety sensor	SELF-RESETTABLE when the cause disappears
E50	N	YES	Problems with the fan supply; Fan problems.	manually resettable from the RESET key
E51	N	YES	Control error / fan status	manually resettable from the RESET key
E52	N	YES	Improper fan operation Ex. fan speed set incorrectly.	manually resettable from the RESET key
E88	C	YES	Specific error for performing the PIF (Commissioning) operation by one of the service companies authorized according to the legislation in force and approved by us KOBER SRL. For this, contact one of the partner companies within your domicile, indicated in the list inside the Warranty Certificate.	SELF-RESETTABLE when the cause disappears

10 DISPOSAL OF ELECTRICAL AND ELECTRONIC WASTE (GEO 5/2015)

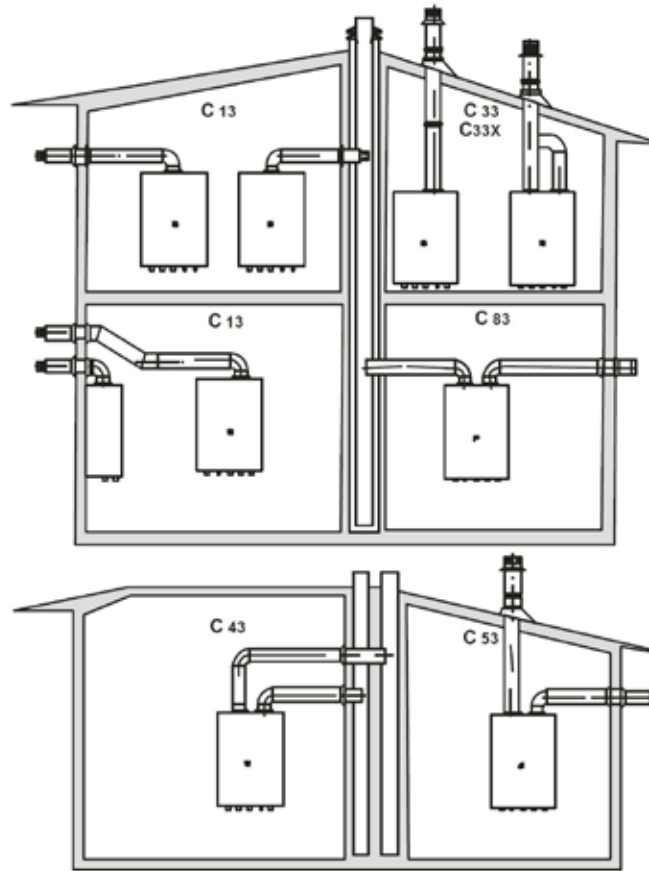


This symbol indicates that this product should not be disposed of as household waste. It must be taken to a collection center for the recycling of electrical and electronic equipment. Proper disposal of the product avoids possible consequences for the environment and health. Recycling materials allows the conservation of natural resources. For other information about recycling of this product, please contact your local household waste disposal service.

11 ANNEXES

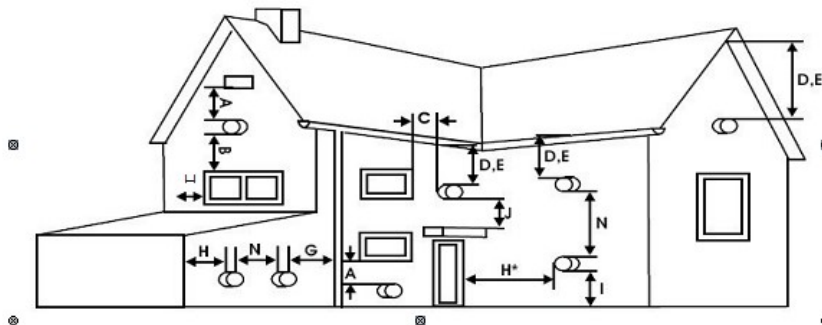
11.1 Sketches necessary for installation and commissioning

Types of mounting configurations for wall-mounted condensing boiler C38GC25 / C38GC29 / C38GC35

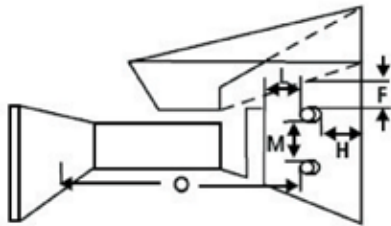


Nr.	Exhaust type	Exhaust piping - minimum and maximum length (m)		Ø (mm)
1	C13	Lmin = 1 m Lmin = 1 m	Lmax = 3 m Lmax = 5 m	Ø 60 / Ø100 -concentric Ø80 / Ø80 - dual
2	C33, C33x	Lmin = 1 m Lmin = 1 m	Lmax = 3 m Lmax = 5 m	Ø 60 / Ø100 -concentric Ø80 / Ø80 - dual
3	C43	Lmin = 1 m	Lmax = 5 m	Ø80 / Ø80 - dual
4	C53	Lmin = 1 m	Lmax = 5 m	Ø80 / Ø80 - dual
5	C83	Lmin = 1 m	Lmax = 5 m	Ø80 / Ø80 - dual
6	C93 / C93X	Lmin = 1 m Lmin = 1 m	Lmax = 3 m Lmax = 5 m	Ø 60 / Ø100 -concentric Ø80 / Ø80 - dual

11.2 Recommended minimum distances for mounting the coaxial kit



GARAGE, ANNEX, ETC.



THE LEGEND:

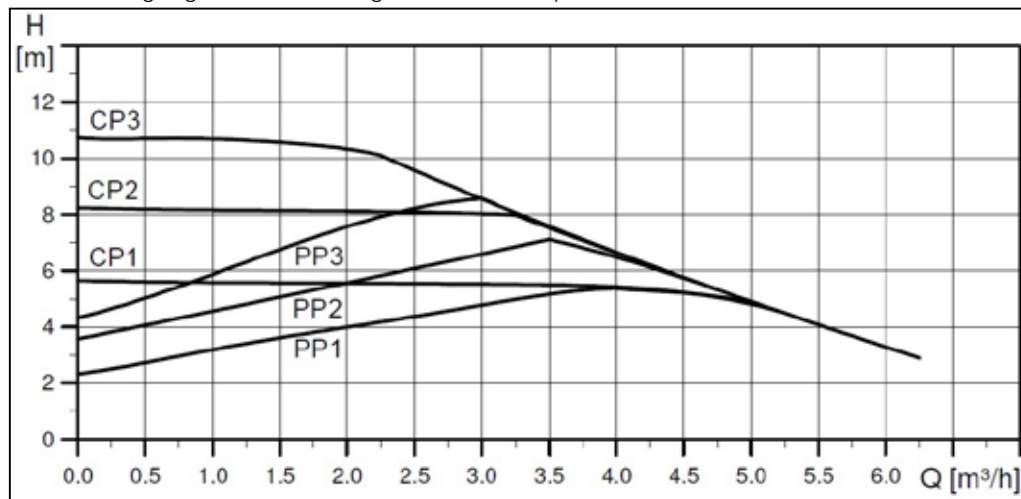
A - distance from under the window / hole
ventilation = 300mm
B - distance above the window / hole
ventilation = 300mm
C - left / right distance from
window / vent hole = 300mm
D, E - distance from the roof / drainage gutter = 250mm
F - distance from the roof garage / balcony = 250mm

G - distance from the vertical drain gutter = 250mm
H - distance from internal / external corners = 250mm
H * - distance from windows / doors = 300mm
I - distance from the ground / balcony = 300mm
J - distance above the door = 600mm

L - distance to the door / window in the garage = 1200mm
M - vertical distance from another terminal = 1500mm
N - horizontal distance from another terminal = 300mm
O - distance from the wall of another construction = 1200mm

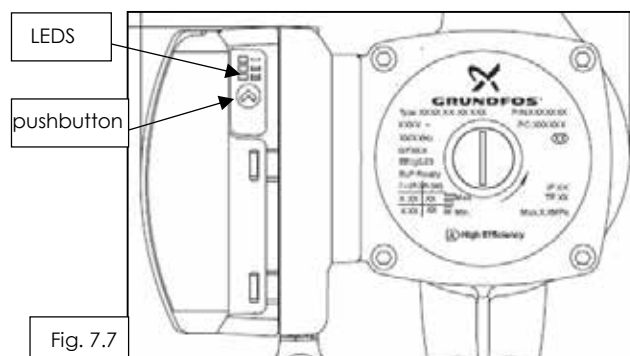
11.3 Hydraulic characteristic of the pump

When designing the district heating installation, the hydraulic characteristics of the UPML 25-105 130 Pump will be considered.



Curve	Max. Hnom
CP1	5.5 m
CP2	8 m
CP3	10.5 m
PP1	5.5 m
PP2	7 m

Power absorbed		
	I1 / I (A)	P1 (W)
Minimum	0.1	11
Maximum	1.1	140



Choosing the operating mode:

The user interface allows the selection between 6 operating curves in two ways:

- three proportional pressure curves (PP)
- three constant pressure / power (CP) curves

Selection of the characteristic curve:

Press the button for 2 seconds (fig. 7.7);

- the pump enters the adjustment mode - the LED starts flashing.
- each time you press, the setting changes;
- LED 1-2-3 is permanently lit, and then the control curve and mode are changed:

Flashing LED mode:

- Fast: Proportional pressure
- Slow: Constant pressure / power

After 10 seconds without pressing the button:

- The setting is saved
- The pump returns to operating mode
- LED 1, 2 or 3 is permanently lit.

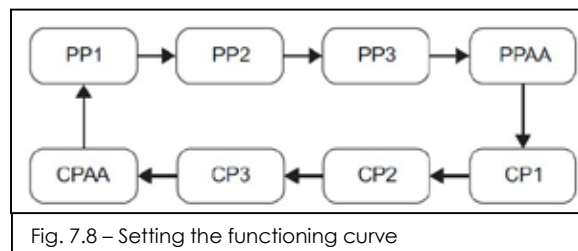


Fig. 7.8 – Setting the functioning curve

The pump works with the selected curve and mode.

- PP1 - low proportional curve
- PP2 - average proportional curve
- PP3 - high proportional curve
- PPAA - AUTOADAPT - proportional pressure curve from highest to lowest

- CP1 - low constant curve
- CP2 - average constant curve
- CP3* - maximum constant curve
- CPAA - AUTOADAPT - constant pressure curve from highest to lowest

* The factory default mode is CP3.

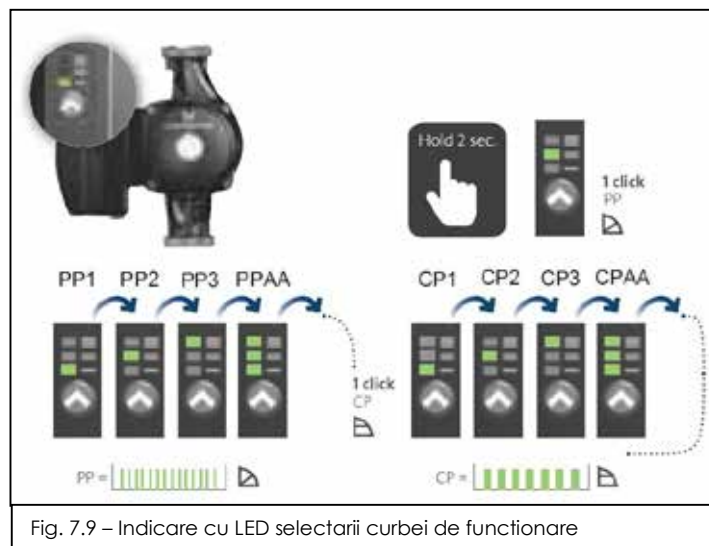


Fig. 7.9 – Indicating the selected operating curve and mode using the LED indicator

The AUTOADAPT function allows the pump to automatically control performance within a defined performance range.

- Adjusting the pump performance to the size of the installation;
- Adjusting the pump performance for load variations over time.

The control of the pump is performed by adapting the differential pressure to the flow (proportional pressure and constant pressure). Unlike an uncontrolled pump, a constant pressure controlled pump maintains constant differential pressure. A pump with controlled proportional pressure reduces the differential pressure due to the decrease in heat demand.



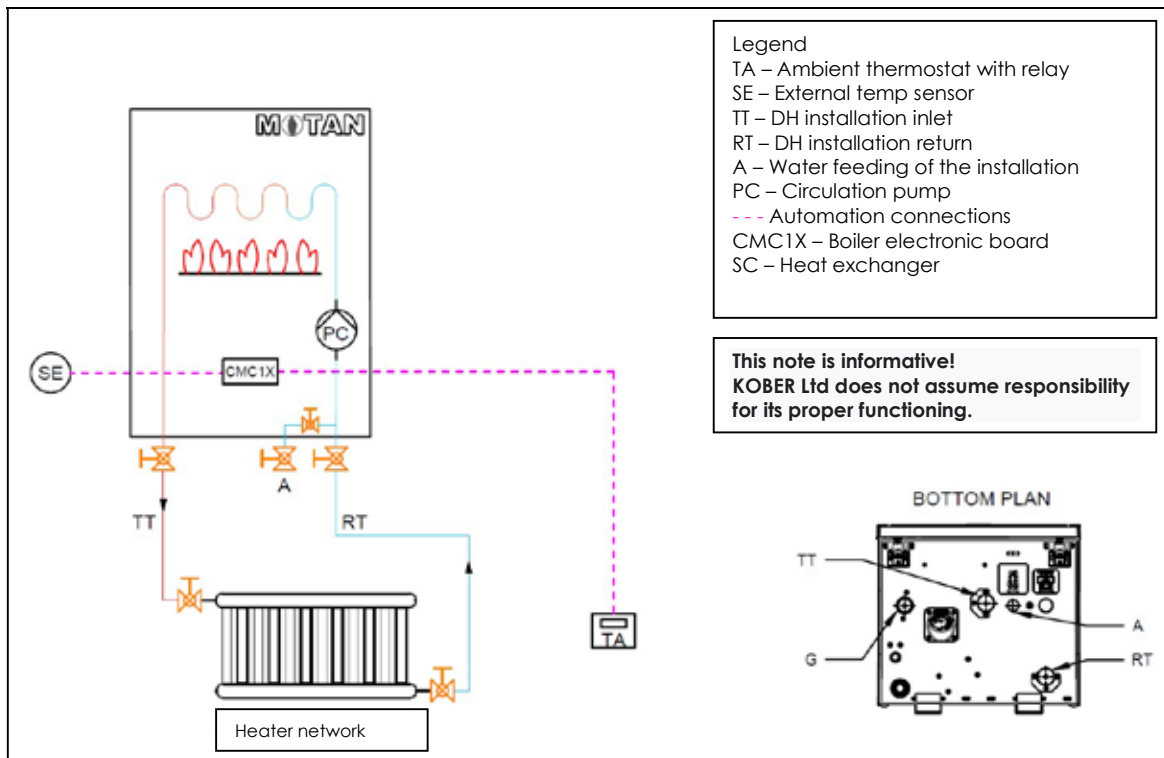
Setting the operating mode of the pump is recommended to be done with the boiler in ventilation mode, the boiler being in the OFF (Stand-by) state.

Pump error codes.

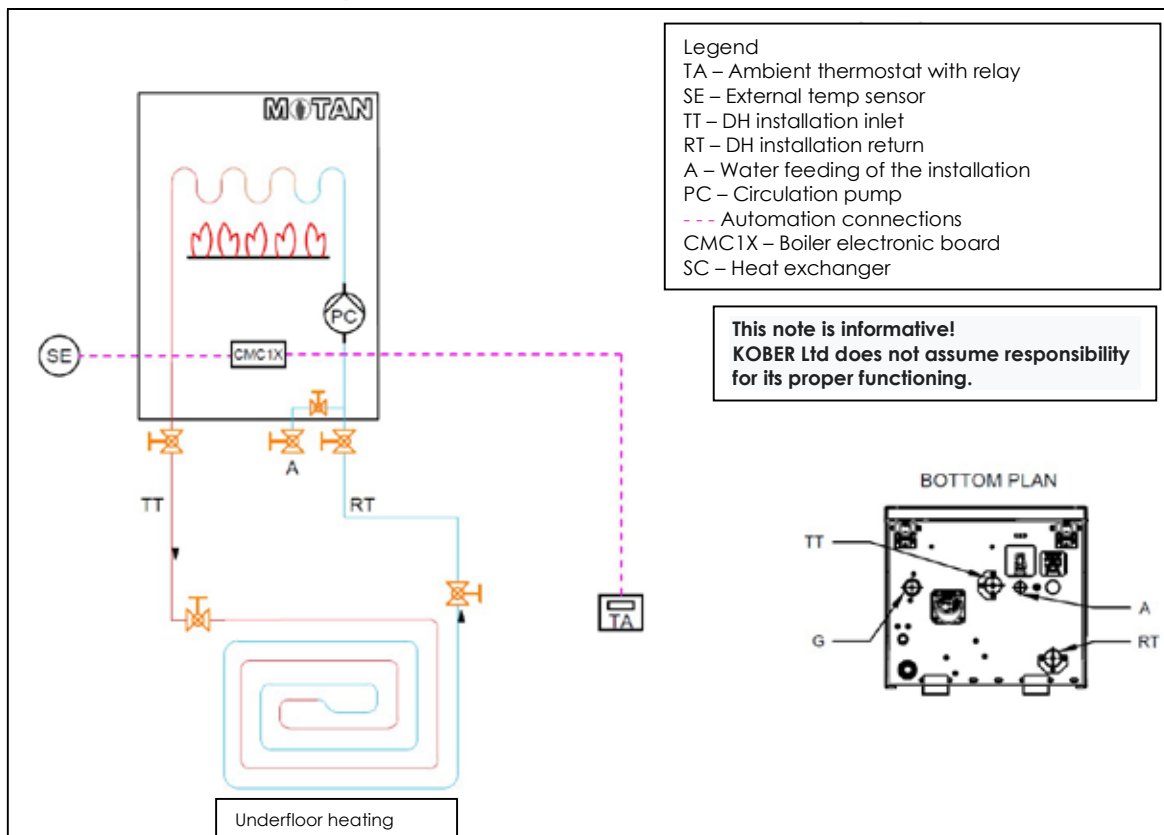
Table 7.2 -Pump error codes		
Defective	Pump action	remedial
The pump does not work. No power supply	The switch is closed	Check the switch
	A fuse in the installation is burned	Replace the fuse
	Safety has been triggered	Check the power cord and raise the fuse
	Power failure	Check the power supply
The pump does not work. Powered by electricity	The switch is closed	Check the switch
	The pump is blocked with impurities	Remove impurities. Unscrew the release screw on the front of the pump with a screwdriver. Be careful when spraying with hot water.
	The pump is defective	Replace the pump
The pump operates at maximum power and cannot be controlled	No weekly from the signal cable	Check that the cable is connected to the controller. If so, replace the cable.
Noise in the installation	There is air in the installation	Ventilate the installation
	Differential pressure too high	Reduce pump performance at the pump or external controller
Noise in pump operation	There is air in the pump	Let your pump run. The pump self-aerates over time
	The inlet pressure is too low	Increase the pressure in the system or check the pressure in the expansion vessel, if installed
Insufficient flow	Pump performance is too low	Check the settings of the pump or external controller
	The hydraulic system is closed or the system pressure is too low	Check the check valve and filter. Increase pressure in the installation.

11.4 Operating diagrams

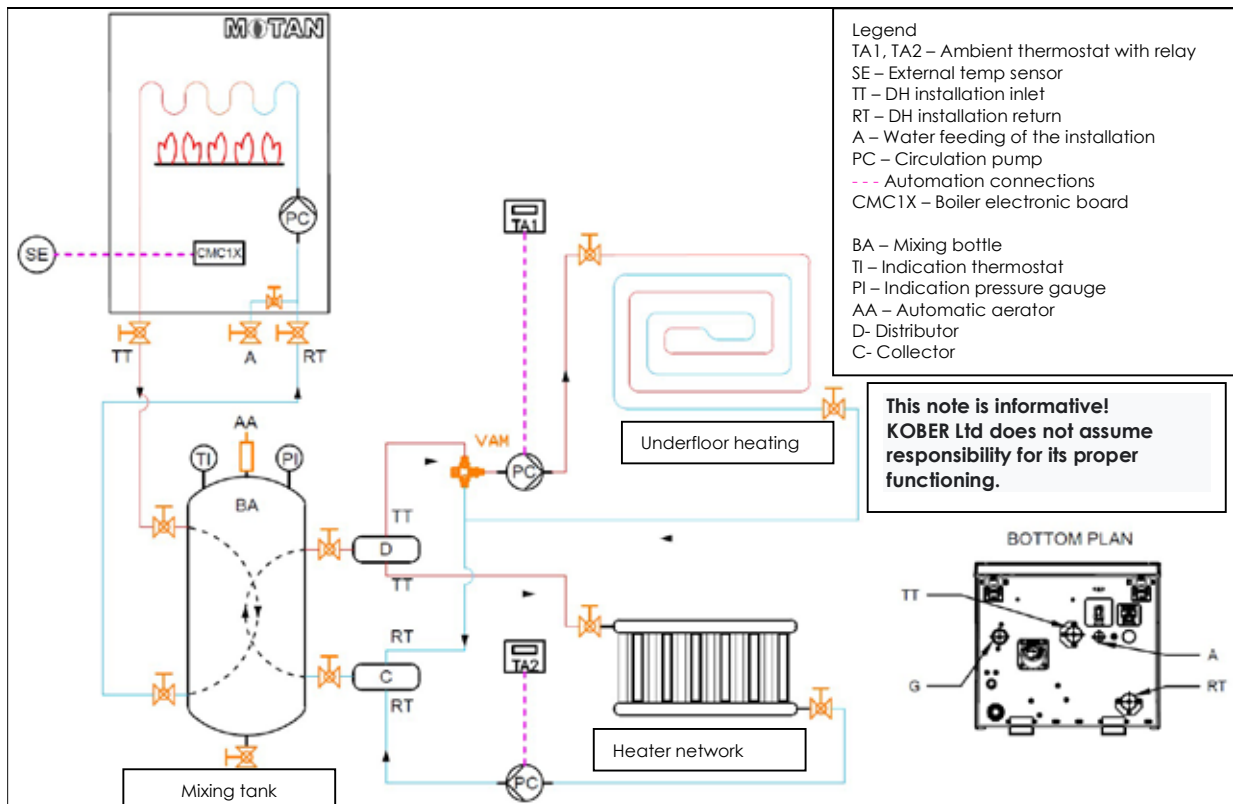
11.4.1 Central heating with radiators



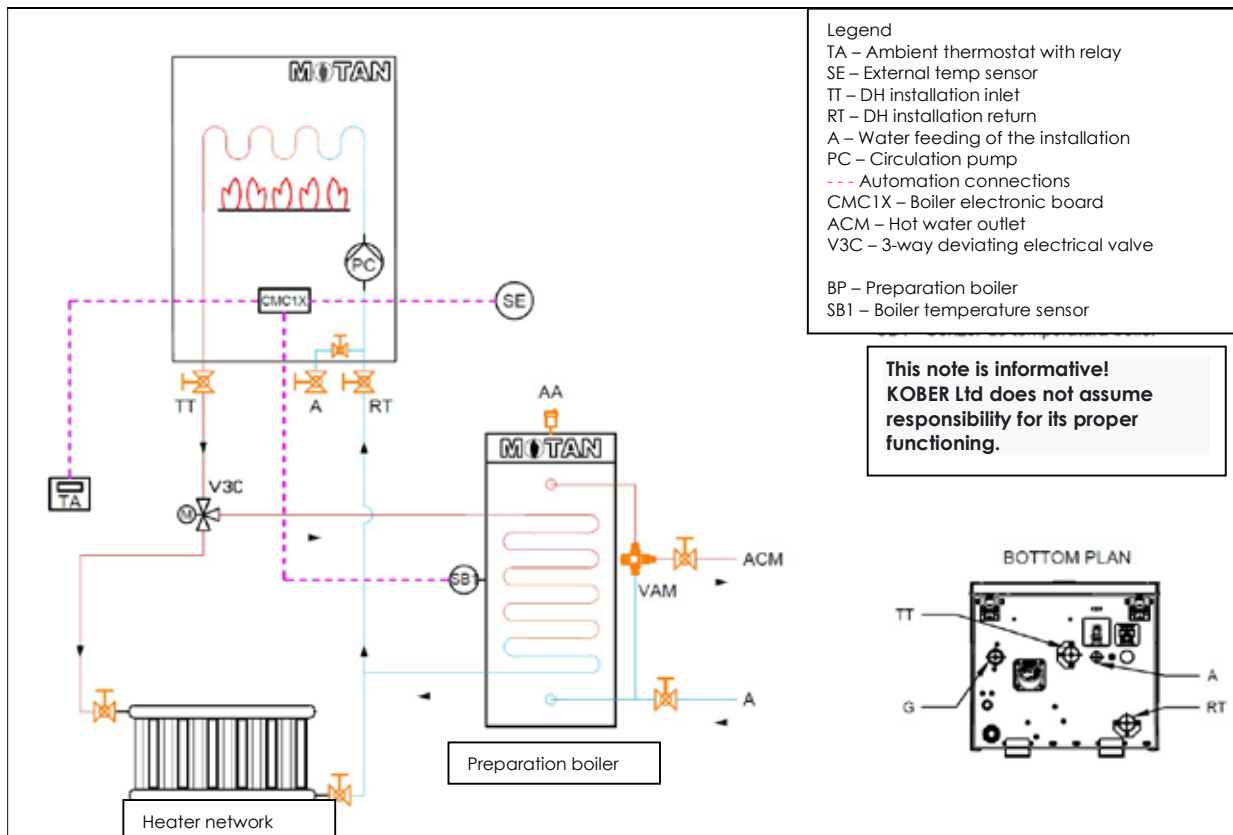
11.4.2 Central underfloor heating



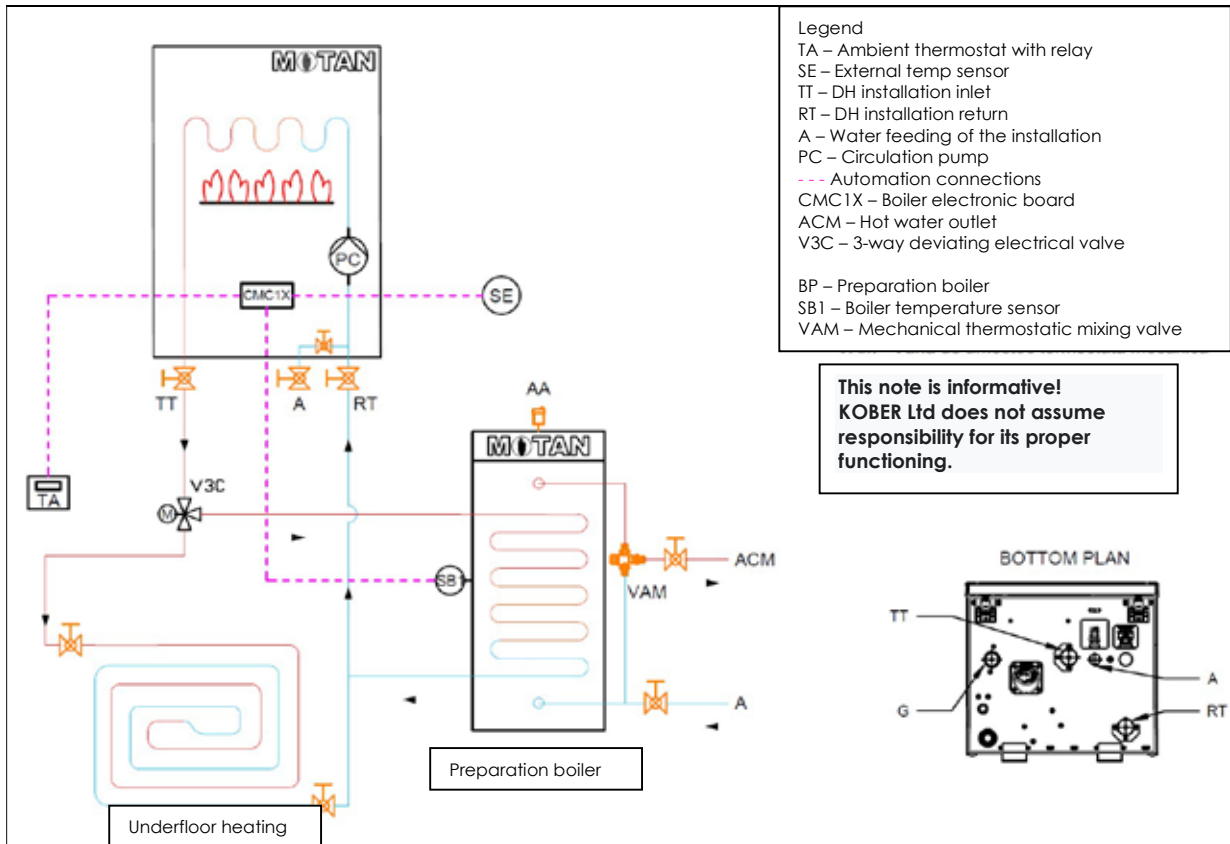
11.4.3 Central heating through the floor and radiators



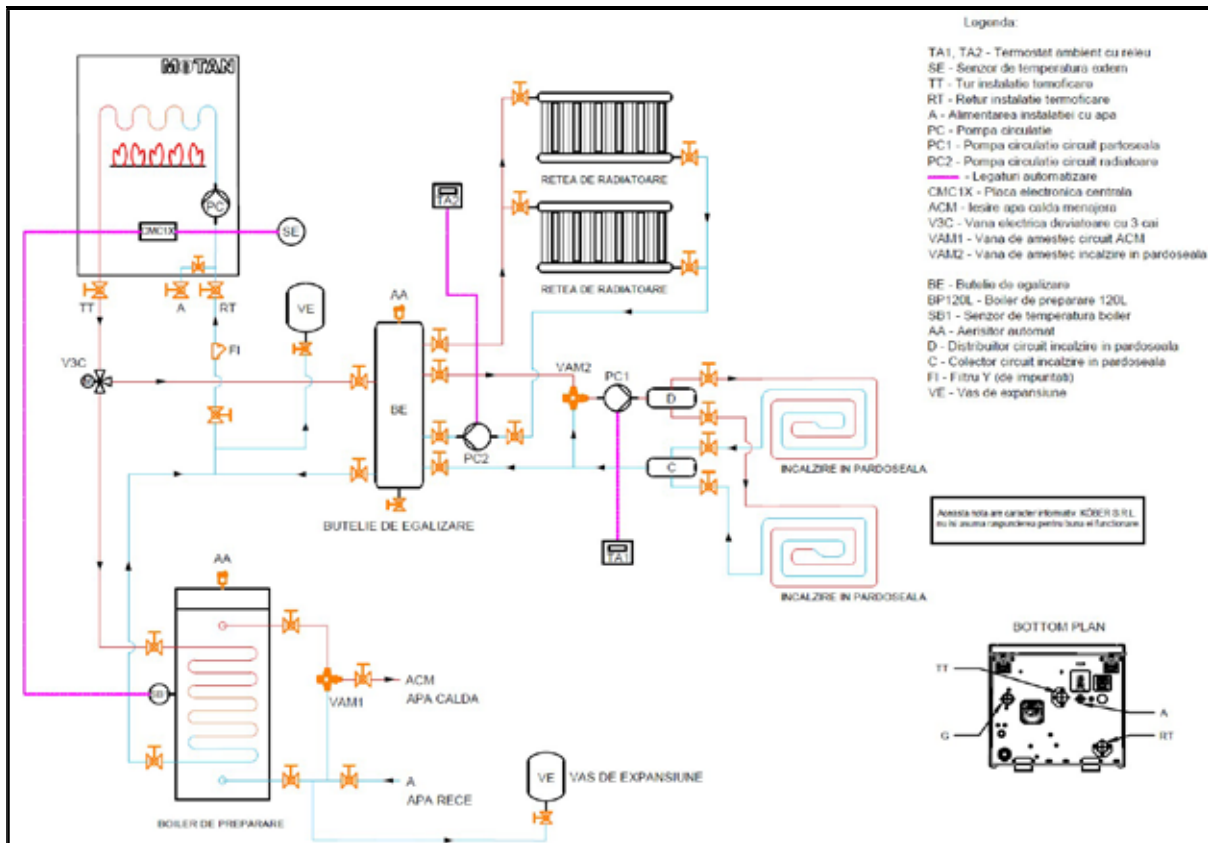
11.4.4 Central heating by radiators and boiler with coil



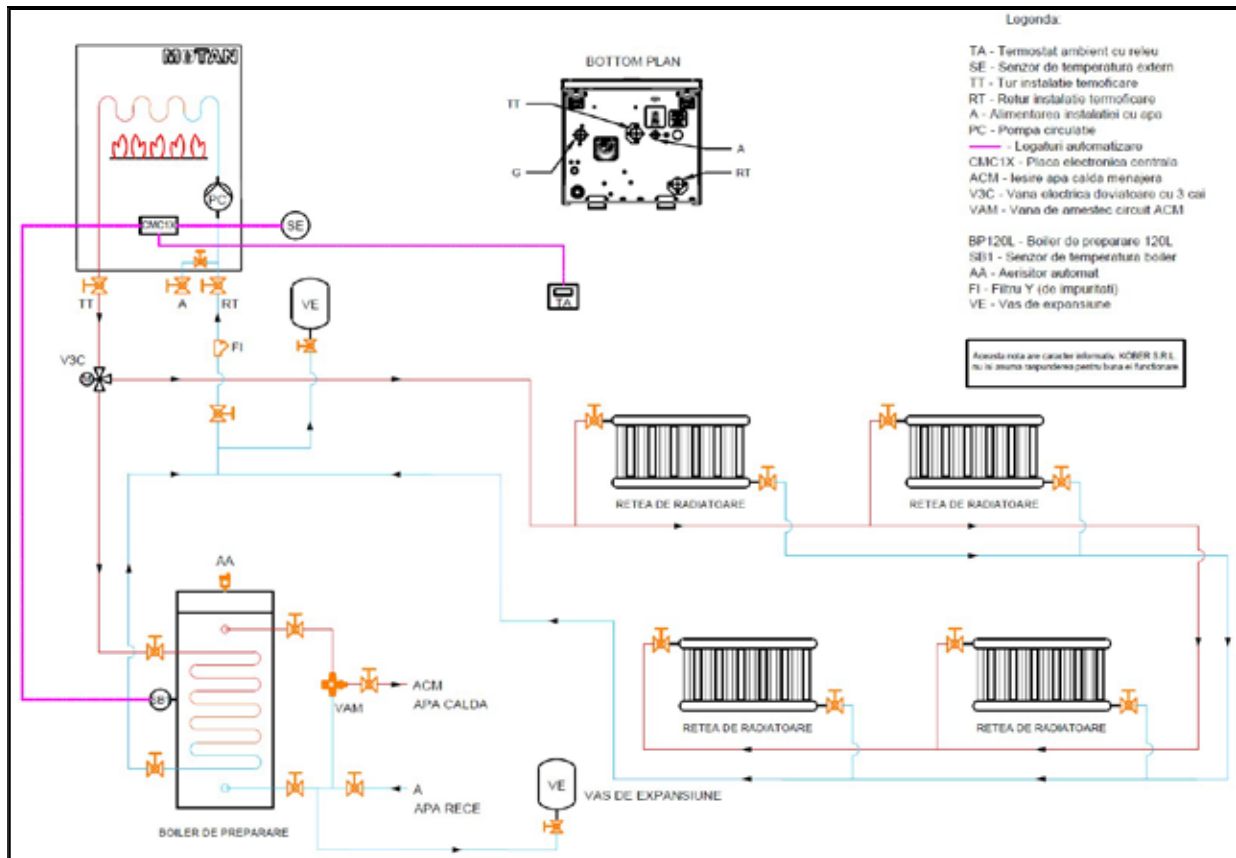
11.4.5 Central heating through the floor and boiler with coil



11.4.6 Mixed central heating (with radiators and underfloor) and coil water tank



11.4.7 Central heating with radiators, coil water tank and solar collectors



11.4.8 Mixed central heating (with radiators and underfloor), coil water tank and solar collector

