

KÖBER SRL VADURI BRANCH



USER MANUAL

CONDENSING GAS BOILER

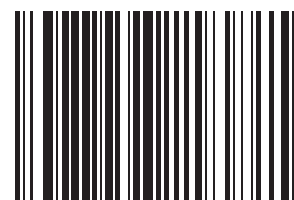
C38GC25V1 ● C38GC29V1 ● C38GC35V1
C38GC25-PV1 ● C38GC35-CH1V1 ● C38GC35-CH2V1

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



CE 2726₂₁

KÖBER Ltd, no. 25 Vaduri, Alexandru cel Bun Commune, Neamt 617511, Romania
Tel.:+40.233.24.17.46, 233.24.19.33, Fax:+40.233.24.19.29
www.motan.ro



PM002273

Contents

1	Safety instructions and symbols	4
1.1	Valability of instructions	4
1.2	CE Marking	4
1.3	Use according to destination	4
2	Technical and functional characteristics	5
2.1	Structure	5
11.1.1	Structure of boiler type C38GC25V1 / C38GC29V1 / C38GC35V1	5
11.1.2	Structure of boiler type C38GC25-PV1	6
11.1.3	The structure of condensation mural central heating gas boilers C38GC35-CH1V1	7
11.1.4	Tab.2.1 Components of the condensation mural central heating gas boiler C38GC35-CH1V1	7
11.1.5	The structure of condensation mural central heating gas boilers C38GC35-CH2V1	8
11.1.6	Tab.2.1 Components of the condensation mural central heating gas boiler C38GC35-CH2V1	8
2.2	Constructive and functional characteristics	9
3	Safety instructions	12
3.1	Installation and adjustment	12
3.2	Gas smell	12
3.3	Changes in the area adjacent to the heating BOILER	12
4	Mounting	12
4.1	Mounting set	12
4.2	Dimensions and mounting positions	13
11.2.1	Installation site	13
11.2.2	Minimum necessary distances/ free spaces for mounting	15
11.2.3	Installing the boiler	16
5	Installation	17
5.1	Conditions for the installation of the central heating BOILER	17
11.1.1	Installation indication	17
11.1.2	Protection of the BOILER in order to keep the warranty	17
5.2	Gas connecting pipe	17
5.3	Connection of the heating unit to the heating installation	18
5.4	General directions for the hot water circuit	19
5.5	Connecting pipe of the condensation output duct	19
5.6	Connecting pipe of the safety valve	20
5.7	Air inlet pipe / burnt gases outlet pipe	20
5.8	Electric grid connection	21
6	Operation instructions	24
6.1	Control panel type LMC202 - valid for the C38GC25V1, C38GC29V1 and C38GC35V1	24
6.2	Description of functions and graphic contexts displayed by the control panel LMC202	26
11.2.1	LMC202 Graphical context - Display the E88 error	26
11.2.2	LMC202 Graphic context – heating unit start-up	26
11.2.3	LMC202 LIGHT function	26
11.2.4	LMC202 Graphic context - Standby state (OFF)	26
11.2.5	LMC202 Graphic context - standby state (ON)	27
11.2.6	LMC202 Graphic context - error mode	27
11.2.7	LMC202 Graphic context - ECONOMIC submenu	27
11.2.8	LMC202 Graphic context - COMFORT submenu	28
11.2.9	LMC202 Graphic context - PTI function enabling - Periodical Technical Inspection	28
11.2.10	LMC202 Graphic context - SERVICE submenu	28
6.3	Control panel type LMC201 - valid for the C38GC25-PV1	29
6.4	Description of functions and graphic contexts displayed by the control panel LMC201	31
11.4.1	LMC201 Graphical context - Display the E88 error	31
11.4.2	LMC201 Graphic context – heating unit start-up	31
11.4.3	LMC201 LIGHT function	31
11.4.4	LMC201 Graphic context - Standby state (OFF)	31
11.4.5	LMC201 Graphic context - standby state (ON)	32
11.4.6	LMC201 Graphic context - error mode	32
11.4.7	LMC201 Graphic context - ECONOMIC submenu	32
11.4.8	LMC201 Graphic context - COMFORT submenu	33
11.4.9	LMC201 Graphic context - PTI function enabling - Periodical Technical Inspection	33
11.4.10	LMC201 Graphic context - SERVICE submenu	33
7	COMMISSIONING	34
7.1	Commissioning work	34
7.2	Starting the boiler and choosing the operating mode:	34
11.2.1	Starting the boiler - control panel LMC202 – for models C38GC25V1; C38GC29V1; C38GC35V1	34
11.2.2	Starting the boiler - control panel LMC201 – for models C38GC25-PV1; C38GC35-CH1V1; C38GC35-CH2V1; 35	35
11.2.3	Functioning as domestic hot water BOILER (DHW)	36
11.2.4	Domestic hot water operation via an individual boiler connected to the boiler (see chapter 11 " Operating modes ") 36	36
11.2.5	Functioning as heating BOILER (HS)	36
11.2.6	Preset functions related to BOILER safety	36
7.3	BOILER switch off in safety conditions	37

7.4	User training	37
7.5	Quality Conditions and Warranty	37
8	INSPECTION AND MAINTENANCE.....	38
8.1	Inspection and maintenance intervals.....	38
8.2	Maintenance works	38
9	Error signals	39
10	ELIMINATION OF ELECTRICAL AND ELECTRONIC WASTE (GEO 5/2015).....	40
11	Drawings necessary for mounting and installation	41
11.2.	Minimum distances recommended for the mounting of the co-axial kit	41
11.3.	Hydraulic characteristic of pump	42
11.4.	Functioning schemes covered by warranty	43
12	43	
11.4.1	Radiators heating and instant preparation of hot water.....	43
11.4.2	Underfloor heating and instant preparation of hot water,	43
11.4.3	Radiators heating and accumulated preparation of hot water (accumulation water tank)	44
11.4.4	Underfloor heating and accumulated preparation of hot water (accumulation water tank)	44
11.4.5	Radiators heating, C38GC35-CH2 boiler (without V3C valve, only with heating circuit preparation)	45
11.4.6	Underfloor heating, C38GC35-CH2 boiler (without V3C valve, only with heating circuit preparation)	45
11.4.7	Radiators and underfloor heating and external boiler for DHW, C38GC35-CH2 boiler	46
11.4.8	Radiators heating and external boiler for DHW, C38GC35-CH2 boiler	46
11.4.9	Underfloor heating and external boiler for DHW, C38GC35-CH1 boiler.....	47
11.4.10	Combine radiators and underfloor heating and external boiler for DHW, C38GC35-CH1 boiler	47
11.4.11	Radiators heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler	48
11.4.12	Underfloor heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler	48
11.4.13	Combine radiators and underfloor heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler	
	49	

1 Safety instructions and symbols

When installing the central heating BOILER we ask you to respect the safety instructions contained in this manual! This manual is the property of **KÖBER SRL-Vaduri branch**. Copying or reproduction without written consent **KÖBER SRL-Vaduri branch** is strictly forbidden.

The following lines explain the symbols used in the text:



Danger! – direct danger for corporal integrity and life.



Danger! – danger of death by electrocution.



Caution! – potentially dangerous situation for the product and the environment.



Note! – useful notes and information. This symbol indicates a necessary activity.

1.1 Valability of instructions

These instructions are valid exclusively for central heating boilers models:

BOILER TYPE	TRADE NAME	POWER	FUNCTIONS PROVIDED	PARTICULARITY
C38GC25V1	CONDENS PLUS 100 25	25 kW	DHW + CENTRAL HEATING	BRASS HYDRAULIC GROUP
C38GC29V1	CONDENS PLUS 100 29	29 kW	DHW + CENTRAL HEATING	BRASS HYDRAULIC GROUP
C38GC35V1	CONDENS PLUS 100 35	35 kW	DHW + CENTRAL HEATING	BRASS HYDRAULIC GROUP
C38GC25-PV1	CONDENS 100 25	25 kW	DHW + CENTRAL HEATING	PA66GF30 HYDRAULIC GROUP
C38GC35-CH1V1	CONDENS 100 35 CH1	35 kW	CENTRAL HEATING	V3C INCLUDED
C38GC35-CH2V1	CONDENS 100 35 CH2	35 kW	CENTRAL HEATING	WITHOUT V3C

Where:

C38 – internal name;

G – type of fuel-gas;

C – compensating;

25, 29 and 35 - the maximum rated power which the boiler can supply, in kW

P/CH1/CH2 / V1 - constructive versions

The boilers are designed to use gas from classes: I2H

1.2 CE Marking

CE marking applied on this product guarantees that the equipment complies with the essential conditions stipulated in the applicable European legislation:

- Directive regarding gas equipment 2009/142/CE (ex. 90/396/CEE)
- EcoDesign Directive 2009/125/EC
- Directive regarding energy efficiency 92/42/EEC and European Regulations no.811-814/2013
- Directive regarding electromagnetic compatibility 2004/108/EC (ex. 89/366/CEE)
- Directive for low frequency 2006/95/EC (ex. 73/23/EEC).

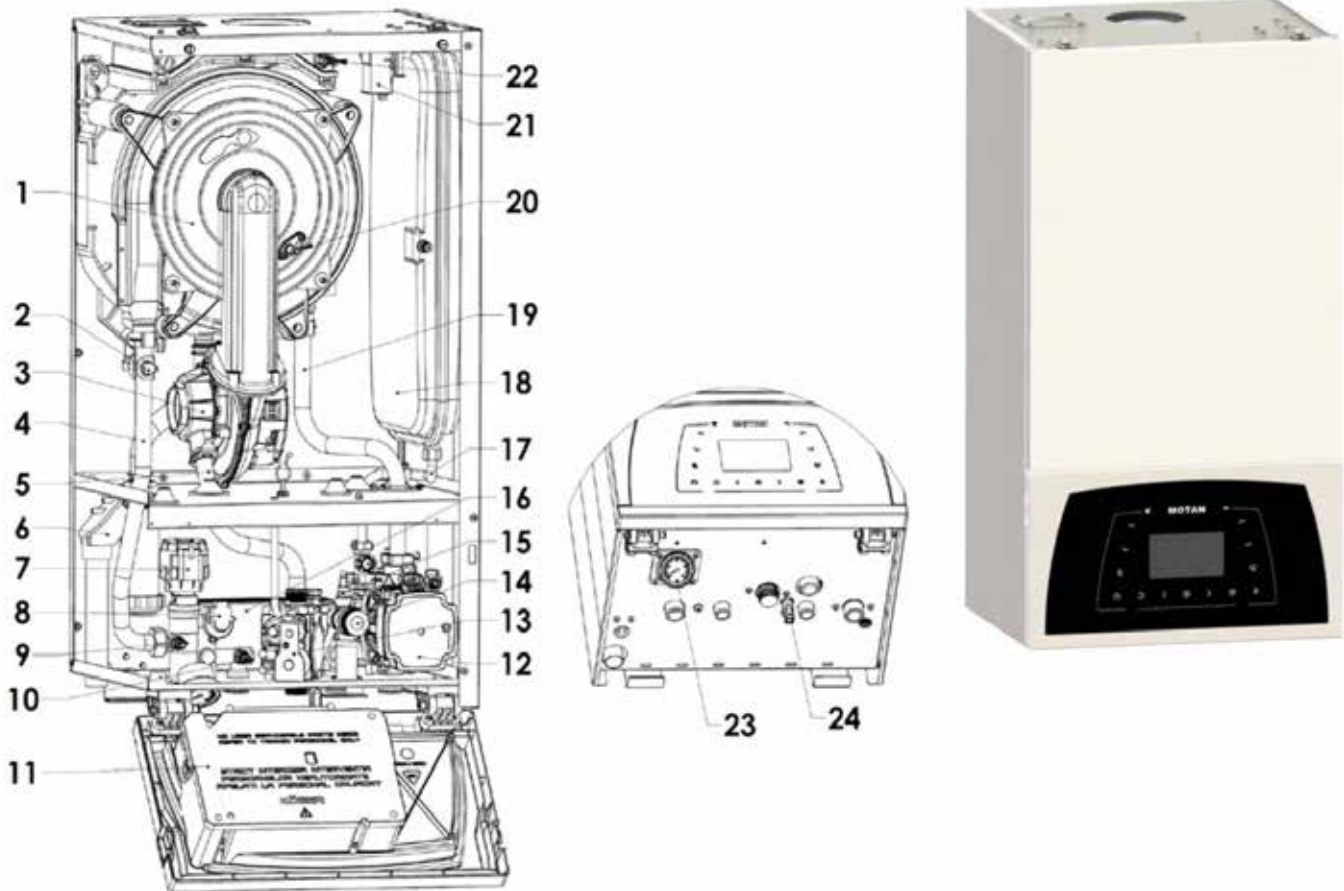
1.3 Use according to destination

- Central heating boilers described to point 1.1 are designed following current technical standards and observing recognized safety norms;
- In case of misuse or inappropriate use, the health or life of users or third parties can be put in danger, as well as the central heating BOILER and other goods;
- This equipment must not be used by people with limited psychological and sensitive capacities (including children), or by people with no experience or/ and no knowledge;
- The BOILER provides both heating in closed circuit central heating installations, as well as hot water. Use for other purposes or for additional purposes other than stipulated is considered inappropriate use. The manufacturer is not responsible for possible damage resulting from inappropriate use. **The user is the only one responsible;**
- Compliance with the use and installation instructions, the additional documentation, as well as with the inspection and maintenance stipulations is part of what is understood by use according to destination.

2 Technical and functional characteristics

2.1 Structure

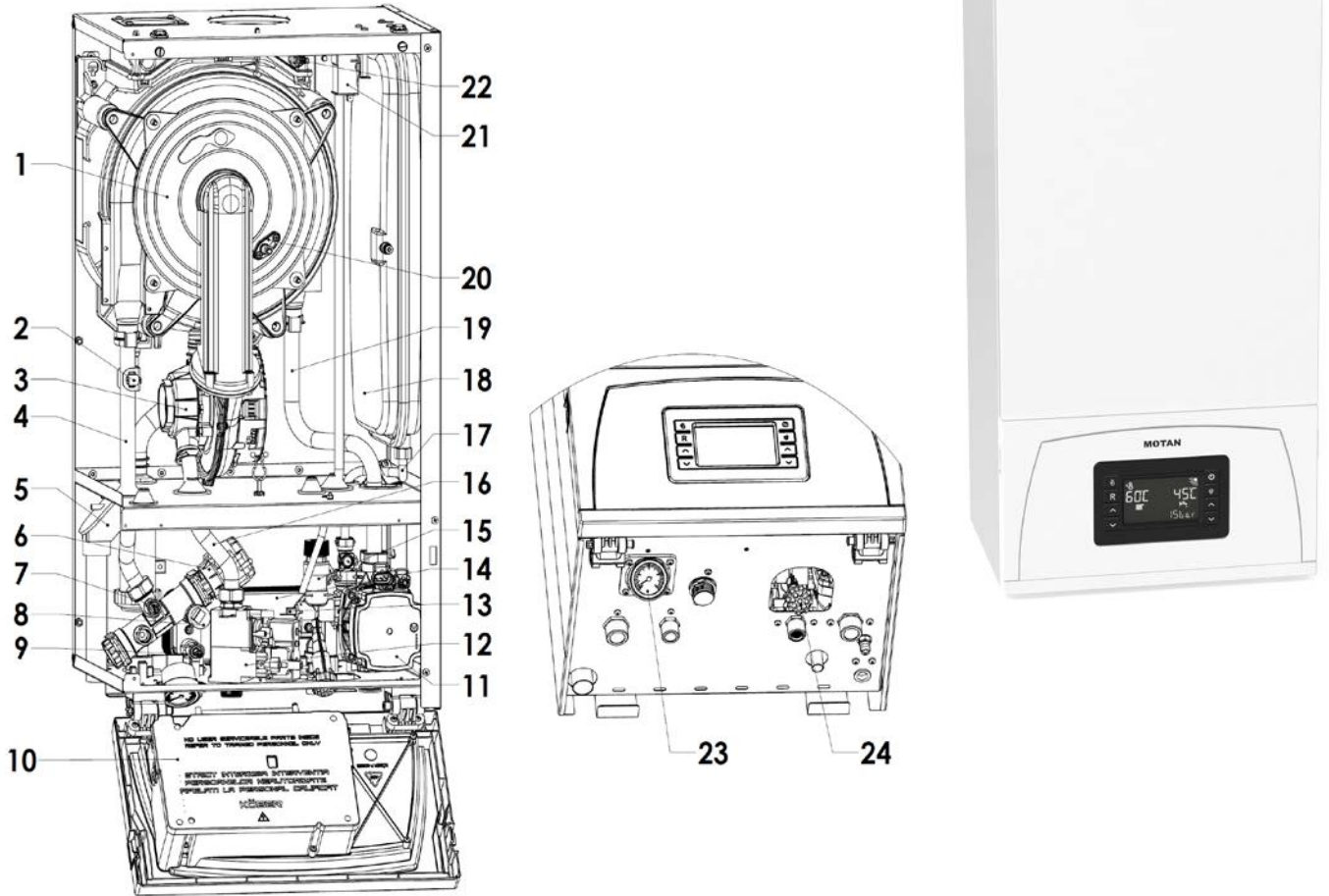
11.1.1 Structure of boiler type C38GC25V1 / C38GC29V1 / C38GC35V1



Tab. 2.1 Components of the condensing boiler C38GC25V1 / C38GC29V1 / C38GC35V1

1	Main heat exchanger	13	Gas valve
2	Primary circuit over temperature temperature controller	14	3 bar overpressure valve
3	Fan with built-in nozzle	15	Heating return temperature sensor
4	Radiator flow connection	16	Secondary heat exchanger
5	Gas supply connection	17	Expansion tank connection
6	Condensate tap	18	Expansion tank
7	3-way valve actuator	19	District heating outlet connection
8	Pressure sensor	20	Ignition electrode
9	District heating temperature sensor	21	Ignition transformer
10	DHW temperature sensor	22	Flue gas temperature sensor
11	Electronic board box	23	Pressure gauge
12	Automatic aerator circulation pump	24	Filling valve

11.1.2 Structure of boiler type C38GC25-PV1



Tab. 2.1 Components of the condensing boiler C38GC25-PV1

1	Main heat exchanger	13	Heating return temperature sensor
2	Primary circuit over temperature temperature controller	14	Secondary heat exchanger
3	Fan with built-in nozzle	15	3 bar overpressure valve
4	Radiator flow connection	16	Gas supply connection
5	Condensate tap	17	Expansion tank connection
6	3-way valve actuator	18	Expansion tank
7	District heating temperature sensor	19	District heating outlet connection
8	Pressure sensor	20	Ignition electrode
9	DHW temperature sensor	21	Ignition transformer
10	Electronic board box	22	Flue gas temperature sensor
11	Automatic aerator circulation pump	23	Pressure gauge
12	Gas valve	24	Filling valve
1	Main heat exchanger	13	Heating return temperature sensor

11.1.3 The structure of condensation mural central heating gas boilers C38GC35-CH1V1

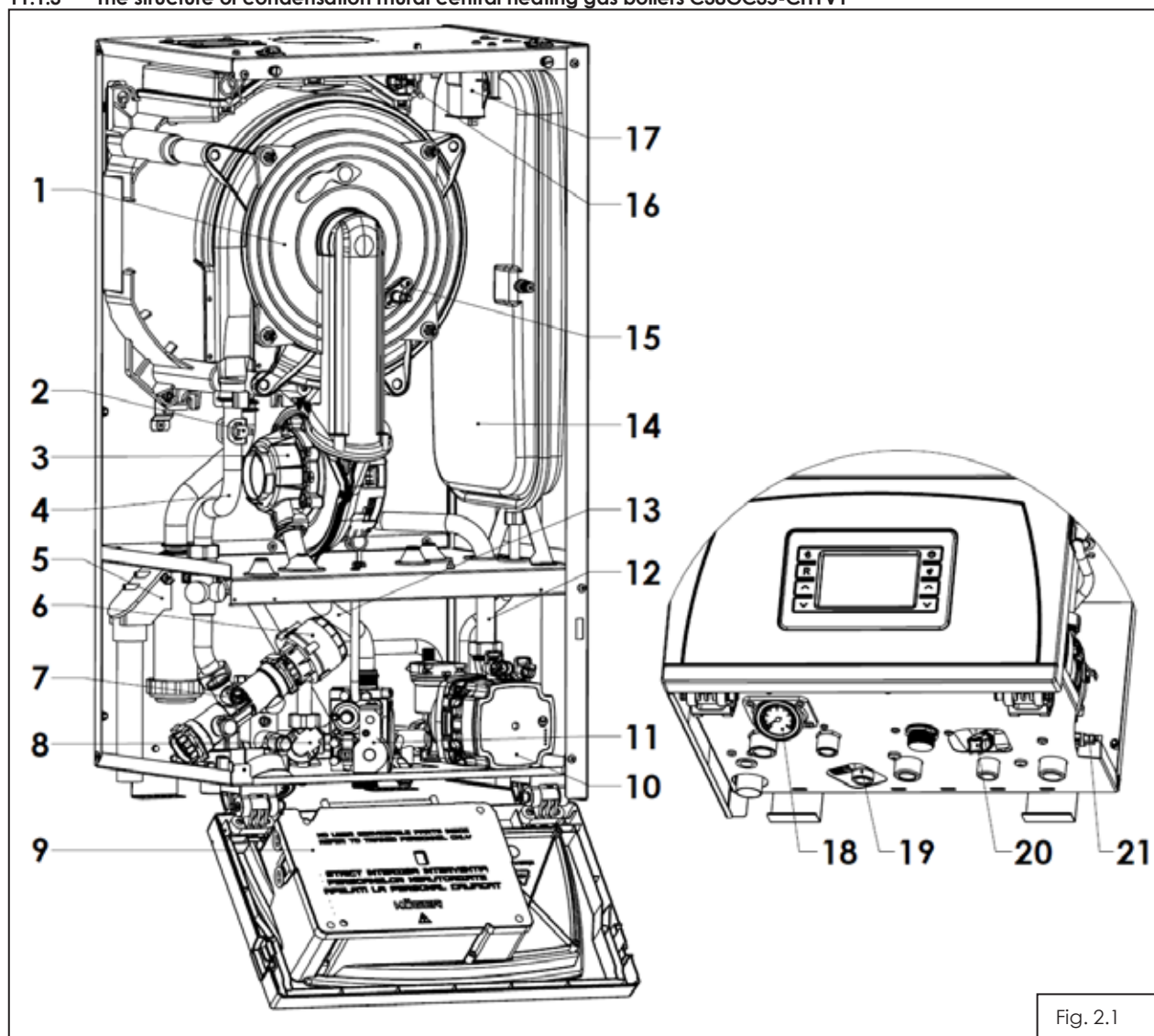


Fig. 2.1

11.1.4 Tab.2.1 Components of the condensation mural central heating gas boiler C38GC35-CH1V1

1	Main heat exchanger	13	Gas supply connection
2	Primary circuit over temperature	14	Expansion tank
3	Fan with built-in nozzle	15	Ignition electrode
4	Radiator flow connection	16	Flue gas temperature sensor
5	Condensate tap	17	Ignition transformer
6	3-way valve actuator	18	Pressure gauge
7	District heating temperature sensor	20	Filling valve
8	Pressure sensor	21	Heating return temperature sensor
9	Electronic board box		
10	Automatic aerator circulation pump		
12	Gas valve		

11.1.5 The structure of condensation mural central heating gas boilers C38GC35-CH2V1

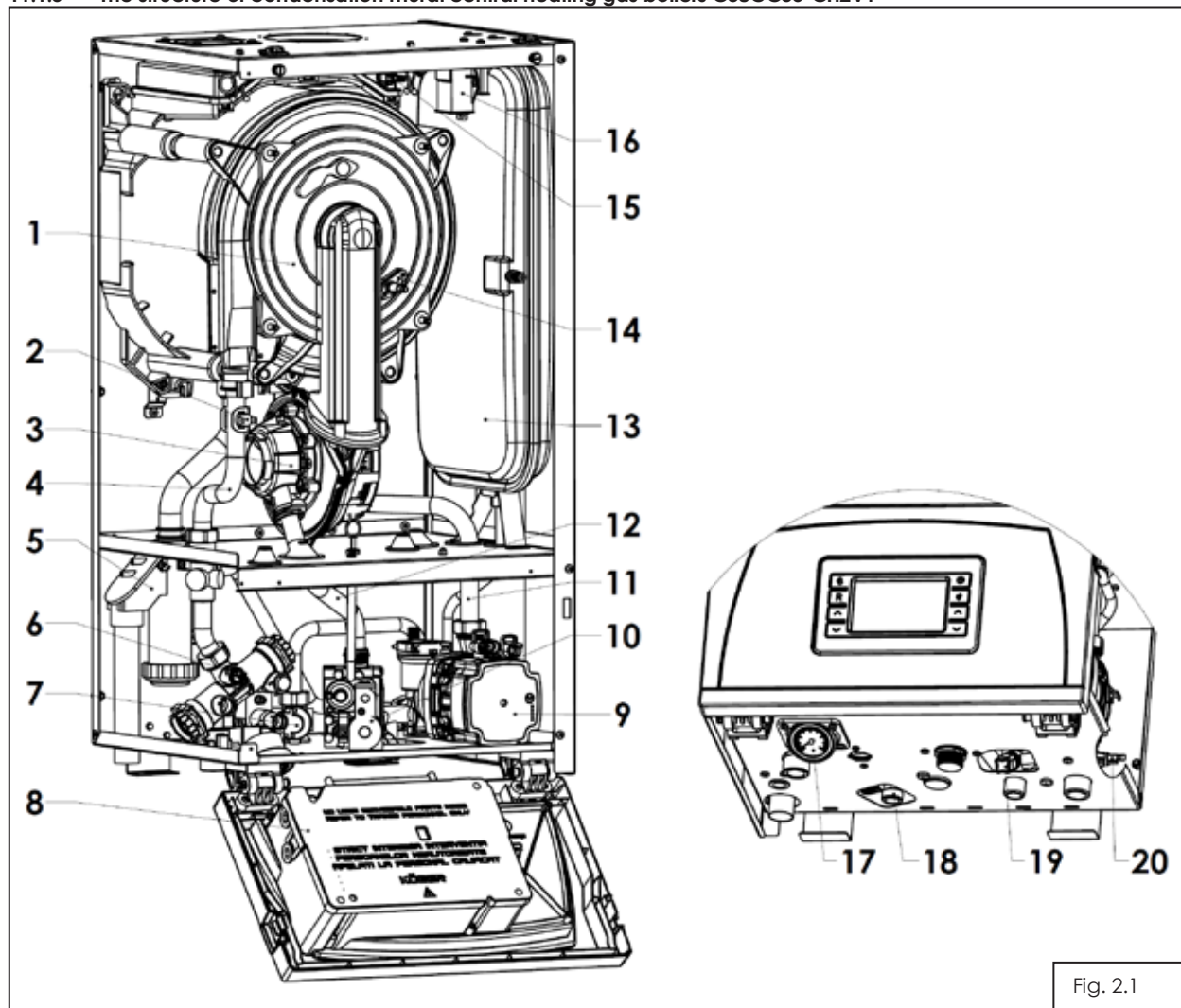


Fig. 2.1

11.1.6 Tab.2.1 Components of the condensation mural central heating gas boiler C38GC35-CH2V1

1	Main heat exchanger	13	Gas supply connection
2	Primary circuit over temperature	14	Expansion tank
3	Fan with built-in nozzle	15	Ignition electrode
4	Radiator flow connection	16	Flue gas temperature sensor
5	Condensate tap	17	Ignition transformer
7	District heating temperature sensor	18	Pressure gauge
8	Pressure sensor	20	Filling valve
9	Electronic board box	21	Heating return temperature sensor
10	Automatic aerator circulation pump		
12	Gas valve		

2.2 Constructive and functional characteristics

Tab.1 Technical characteristics C38GC25V1, C38GC29V1, C38GC35V1

Commercial name		CONDENS PLUS 100 25	CONDENS PLUS 100 29	CONDENS PLUS 100 35	
Type		C38GC25V1	C38GC39V1	C38GC35V1	
Gas category to be used		I ₂ H (GN-G20)			
Flue type		Forced	Forced	Forced	
Burning room		Condensing	Condensing	Condensing	
Efficiency stars (dir. 92/42/CEE)		****	****	****	
Nox class		5	5	5	
Heating energy efficiency class		A	A	A	
DHW energy efficiency class		A	A	A	
Min/Max CH power (kW)	kW	2,8/26,7	3,0/30,6	3,5/33,9	
Max power 80/60 (kW)	kW	25,6	28,3	32,8	
Max power 50/30 (kW)	kW	28,2	32,4	35,8	
Output performance at nominal heat input at 80/60 °C (PCI) (%)	%	97	97	97	
Output performance at nominal heat input at 50/30 °C (PCI) (%)	%	106	106	106	
Consum nominal maxim de combustibil	mc/h	2,82	3,24	3,59	
Seasonal energy efficiency related to space heating in active mode η _S (%)		91	91	91	
Gas pressure	GN (on the regulator)	20 mbar (max. 25 mbar, min. 17 mbar)			
	GN max	35 mbar			
Heating circuit	Maximum pressure on the hot water circuit	minim 0,8 bar - maxim 3 bar			
	Temperature adjustment interval radiators	30÷80 °C			
	Temperature adjustment interval underfloor	15÷45 °C			
DHW circuit	Temperature adjustment interval	30÷55 °C			
	Temperature adjustment interval-boiler mode	70 °C			
	DHW Confort EN 13203	***	***	***	
	Hot water flow at Δt = 30 °K * flow restrictor 12l/min	12 l/min with flow restrictor * 13,5 l/min without flow restrictor *	12 l/min with flow restrictor * 15,7 l/min without flow restrictor *	12 l/min with flow restrictor * 17 l/min without flow restrictor *	
Electrical characteristics	Power	~230VAC/50 Hz			
	Nominal power	81 W	81W	81 W	
Caracteristici constructive	Height	750 mm	750 mm	750 mm	
	Width	400 mm	400 mm	400 mm	
	Depth	345 mm	345 mm	345 mm	
	Height with installed elbow	890 mm	890 mm	890 mm	
	Primary heat exchanger capacity	~33 kg	~38 kg	~38 kg	
	Height	~1,4 l	~1,6 l	~1,8 l	
	Connec-tors	Thermal input, output	3/4"		
		Cold water input, hot water output	1/2"		
		Gas input	3/4"		
	Expansion vessel with membrane		8 l	8 l	8 l
Evacuation type		B23; B33; C13; C13x; C23; C23x; C33; C33x; C43; C43x; C53; C53x; C63; C63x; C73; C73x; C83; C83x; C93; C93x			
Dimensions flue type		Lenght for coaxial flue D60/D100: min. 1m - max. 20m** Lenght for dual flue D80/D80: min. 1m - max. 20m			
Flue temp. (50/30 °C)		~59 °C	~49 °C	~69 °C	
Protection class		Class IPX4D			
Informative values:	Maximum water capacity in central heating installation	200 l	200 l	200 l	

(*)-The standard gas boiler is delivered flow restrictor of 12l/min

(**)-The standard gas boiler is delivered with dual coaxial kit as accessory; dual kit is delivered as accessory on demand

Tab.1 Technical characteristics C38GC25-PV1

Commercial name		CONDENS PLUS 100 25	
Type		C38GC25-PV1	
Gas category to be used		I₂H (GN-G20)	
Flue type		Forced	
Burning room		Condensing	
Efficiency stars (dir. 92/42/CEE)		****	
Nox class		5	
Heating energy efficiency class		A	
DHW energy efficiency class		A	
Min/Max CH power (kW)	kW	2,8/26,7	
Max power 80/60 (kW)	kW	25,6	
Max power 50/30 (kW)	kW	28,2	
Output performance at nominal heat input at 80/60 °C (PCI) (%)	%	97	
Output performance at nominal heat input at 50/30 °C (PCI) (%)	%	106	
Consum nominal maxim de combustibil	mc/h	2,82	
Seasonal energy efficiency related to space heating in active mode η _s (%)		91	
Gas pressure	GN (on the regulator)	20 mbar (max. 25 mbar, min. 17 mbar)	
	GN max	35 mbar	
Heating circuit	Maximum pressure on the hot water circuit	minim 0,8 bar - maxim 3 bar	
	Temperature adjustment interval radiators	30÷80 °C	
	Temperature adjustment interval underfloor	15÷45 °C	
DHW circuit	Temperature adjustment interval	30÷55 °C	
	Temperature adjustment interval-boiler mode	70 °C	
	DHW Confort EN 13203	***	
	Hot water flow at Δ t = 30 °K	12 l/min with flow restrictor * 13,5 l/min without flow restrictor *	
Electrical characteristics	Power	~230VAC/50 Hz	
	Nominal power	81 W	
Caracteristici constructive	Height	750 mm	
	Width	400 mm	
	Depth	345 mm	
	Height with installed elbow	890 mm	
	Primary heat exchanger capacity	~32 kg	
	Height	~1,4 l	
	Connectors	Thermal input, output	3/4"
		Cold water input, hot water output	1/2"
		Gas input	3/4"
	Expansion vessel with membrane		8 l
	Evacuation type		B23; B33; C13; C13x; C23; C23x; C33; C33x; C43; C43x; C53; C53x; C63; C63x; C73; C73x; C83; C83x; C93; C93x
Dimensions flue type		Lenght for coaxial flue D60/D100: min. 1m - max. 20m** Lenght for dual flue D80/D80: min. 1m - max. 20m	
Flue temp. (50/30 °C)		~59 °C	
Protection class		Class IPX4D	
Informative values:	Maximum water capacity in central heating installation	200 l	

(*)-The standard gas boiler is delivered flow restrictor of 12l/min

(**)-The standard gas boiler is delivered with dual coaxial kit as accessory; dual kit is delivered as accessory on demand

Tab.1 Technical characteristics C38GC25-CH1V1, C38GC35-CH2V1

Commercial name		C38GC25-CH1V1	C38GC25-CH2V1	
Type		CONDENS 100 CH1 35	CONDENS 100 CH2 35	
Gas category to be used		I₂H (GN-G20)		
Flue type		Forced		
Burning room		Condensing		
Efficiency stars (dir. 92/42/CEE)		****		
Nox class		5		
Heating energy efficiency class		A		
Min/Max CH power (kW)	kW	3,5/33,9		
Max power 80/60 (kW)	kW	32,8		
Max power 50/30 (kW)	kW	35,8		
Output performance at nominal heat input at 80/60 °C (PCI) (%)	%	97		
Output performance at nominal heat input at 50/30 °C (PCI) (%)	%	106		
Consum nominal maxim de combustibil	mc/h	3,59		
Gas pressure	GN (on the regulator)	20 mbar (max. 25 mbar, min. 17 mbar)		
	GN max	35 mbar		
Heating circuit	Maximum pressure on the hot water circuit	minim 0,8 bar - maxim 3 bar		
	Temperature adjustment interval radiators	30÷80 °C		
	Temperature adjustment interval underfloor	15÷45 °C		
Electrical characteristics	Power	~230VAC/50 Hz		
	Nominal power	81 W		
Caracteristici constructive	Height	750 mm		
	Width	400 mm		
	Depth	345 mm		
	Height with installed elbow	890 mm		
	Primary heat exchanger capacity	~37 kg		
	Height	~1,8 l		
	Connectors	Thermal input, output	3/4"	
		Cold water input	1/2"	
		Gas input	3/4"	
	Expansion vessel with membrane	8 l		
Evacuation type	B23; B33; C13; C13x; C23; C23x; C33; C33x; C43; C43x; C53; C53x; C63; C63x; C73; C73x; C83; C83x; C93; C93x			
Dimensions flue type	Lenght for coaxial flue D60/D100: min. 1m - max. 20m** Lenght for dual flue D80/D80: min. 1m - max. 20m			
Flue temp. (50/30 °C)	~59 °C			
Protection class	Class IPX4D			
Informative values:	Maximum water capacity in central heating installation	200 l		

(**)-The standard gas boiler is delivered with dual coaxial kit as accessory; dual kit is delivered as accessory on demand

3 Safety instructions

3.1 Instalation and adjustment

Installation and commissioning can be done only by a company authorized and agreed by KÖBER SRL-Vaduri Branch! This company will assume responsibility for the correct installation and commissioning.

Adjustment work, as well as maintenance and repair are allowed to be performed only by a company authorized and agreed by KÖBER SRL-Vaduri Branch!



Danger!

Danger of death by poisoning and explosion due to leaks in the gas pipes and connections, in case of incorrect installation!

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

3.2 Gas smell

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

- Do not activate electric switches in the dangerous zone;
- Do not smoke in the dangerous zone;
- Do not use mobile phones in the dangerous zone;
- Turn off the gas tap;
- Air the dangerous zone;
- Notify the gas distribution company.

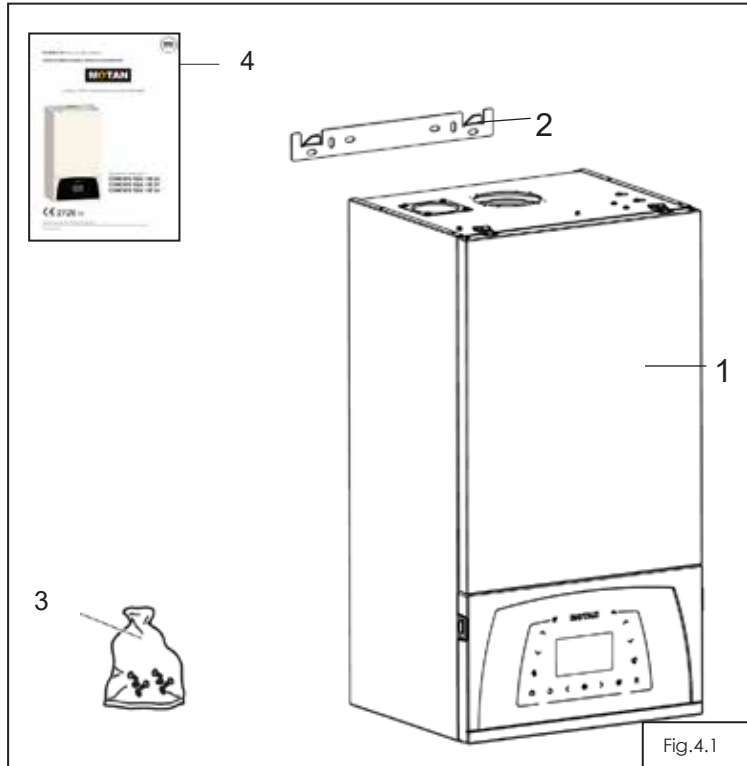
3.3 Changes in the area adjacent to the heating BOILER

Modifications of the following installations are not allowed:

- The central heating BOILER;
- The gas or water pipes or electric cables;
- Air/ gas incoming/ outgoing pipes.

4 Mounting

4.1 Mounting set



Check whether the mounting set is complete and undamaged – see table 2.

Tab. 2 Mounting set		
Pos.	Pcs.	Description
1	1	Heating unit* * The image is for presentation only. The product differs depending on the model purchased, of the area and the acquisition period.
2	1	BOILER support
3	1	Bag of small elements - it contains: - mounting screws 8x80 - 2 items.
4	1	Printed packet – it contains: - user manual - 1 item - CE conformity declaration - 1 item - warranty certificate – 1 item

4.2 Dimensions and mounting positions

11.2.1 Installation site

When choosing the installation site, please take into consideration the following safety instructions:



Caution!

Do not install the BOILER in spaces that are exposed to freezing! In case of freezing the sation can be damaged.
This equipment can not be installed and used in open air. Outdoor installation can cause functioning flaws.

Caution!

It is not recommended to install the central heating BOILER in bathrooms or kitchens or other areas with high humidity. The BOILER can be installed only in rooms with maximum 60% humidity between 20-30°C in order to prevent the damaging of electronic components.



Caution!

The burning air of the BOILER must not contain substances such as flourine vapours, chlorine, sulphur, dissolvants, colorants, adhesives or gasoline. These substances can lead in time to the corrosion of the equipment and air/ gas incoming/ outgoing pipes.

Legend:

- A – Thermal input connector
- B – Hot water output connector
- C – Fuel input connector
- D – Cold water input connector
- E – Thermal output connector

Fig. 4.2 Overall dimensions and mounting positions of thermal power plant model C38GC25V1 / C38GC29V1 / C38GC35V1:

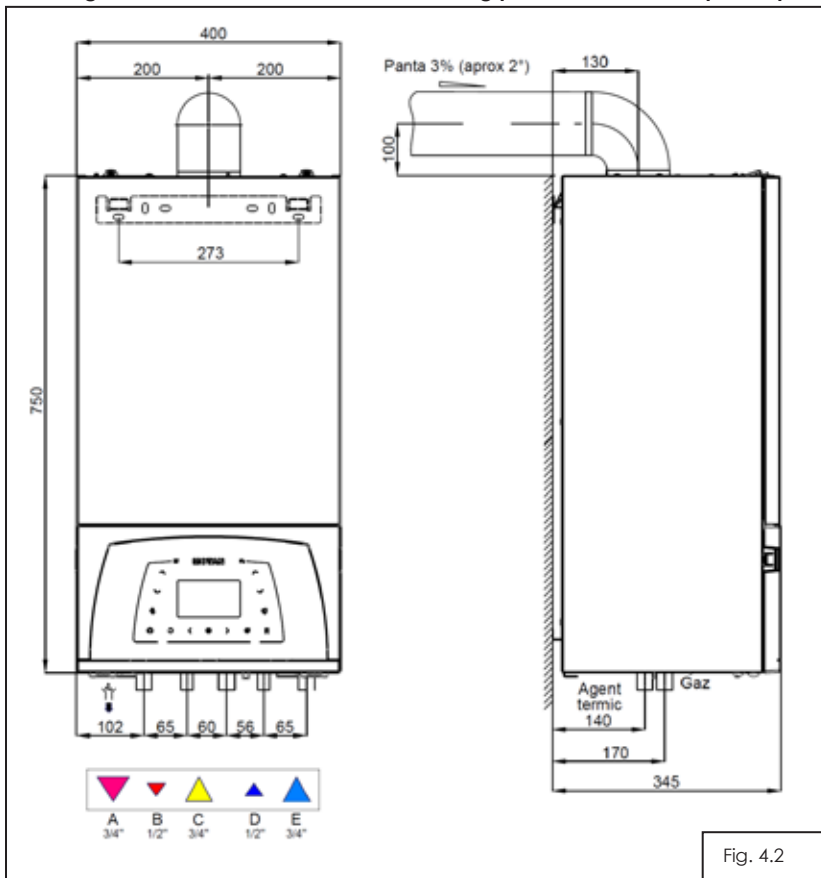


Fig. 4.2

Fig. 4.2 Overall dimensions and mounting positions of boiler model C38GC25-PV1:

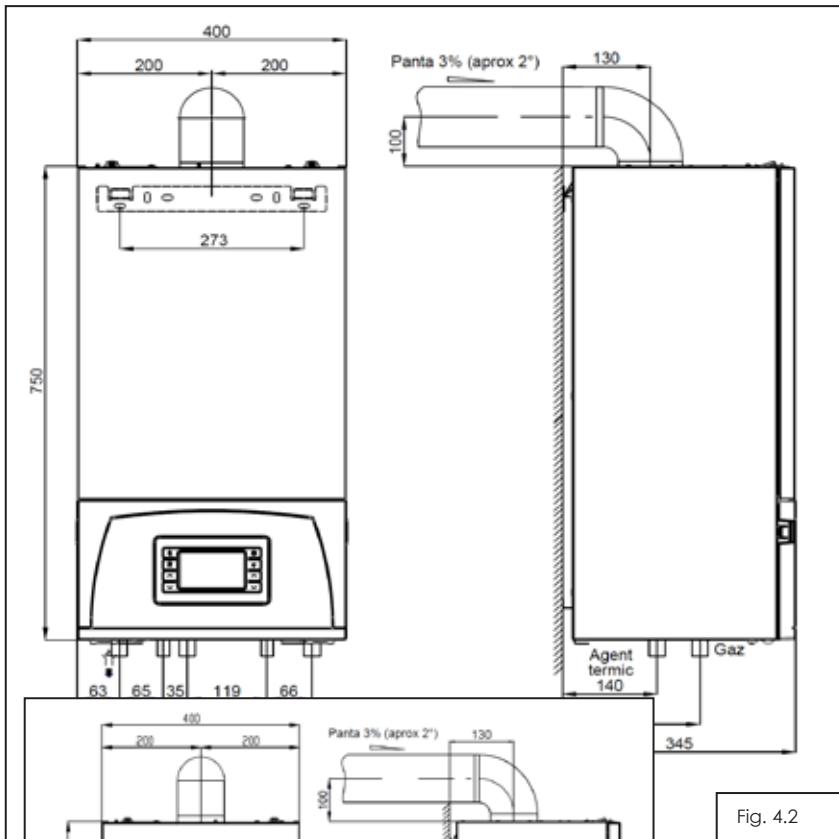


Fig. 4.2

Fig. 4.2 Dimensions and mounting positions for models C38GC35-CH1V1:

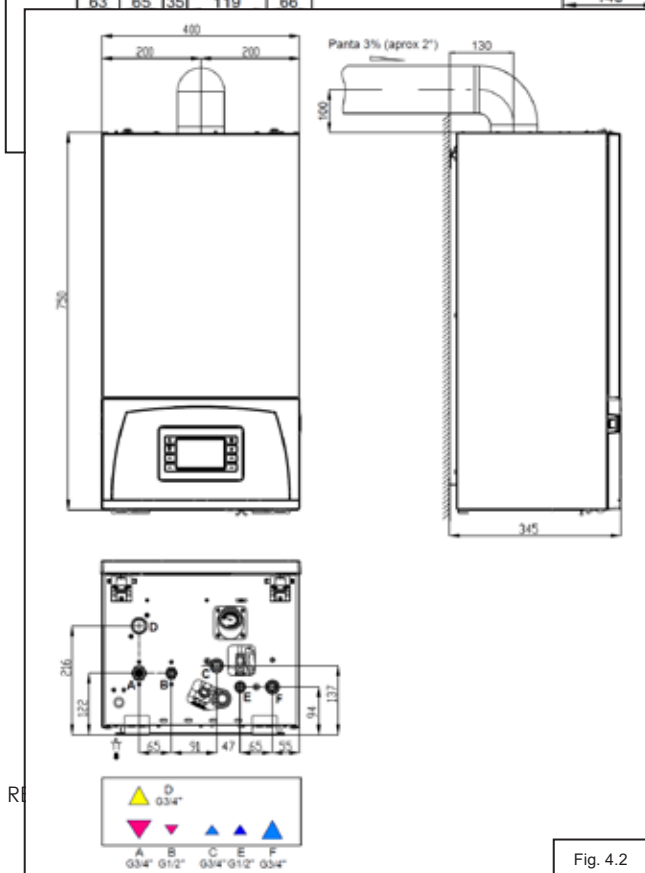


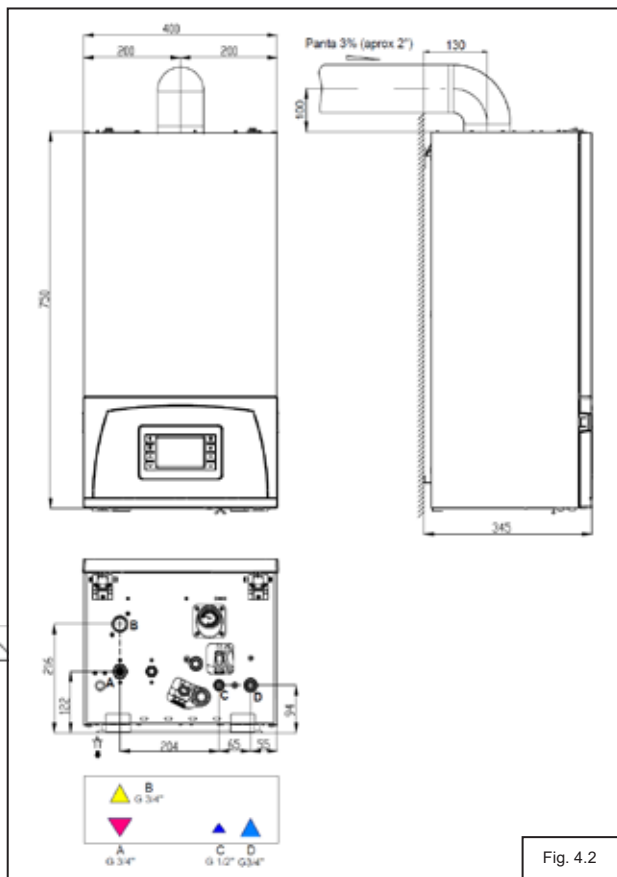
Fig. 4.2

Legend:

- A - Thermal input connector
- B - Water Boiler input connector
- C - Water Boiler output connector
- D - Fuel input connector
- E - Cold water input connector

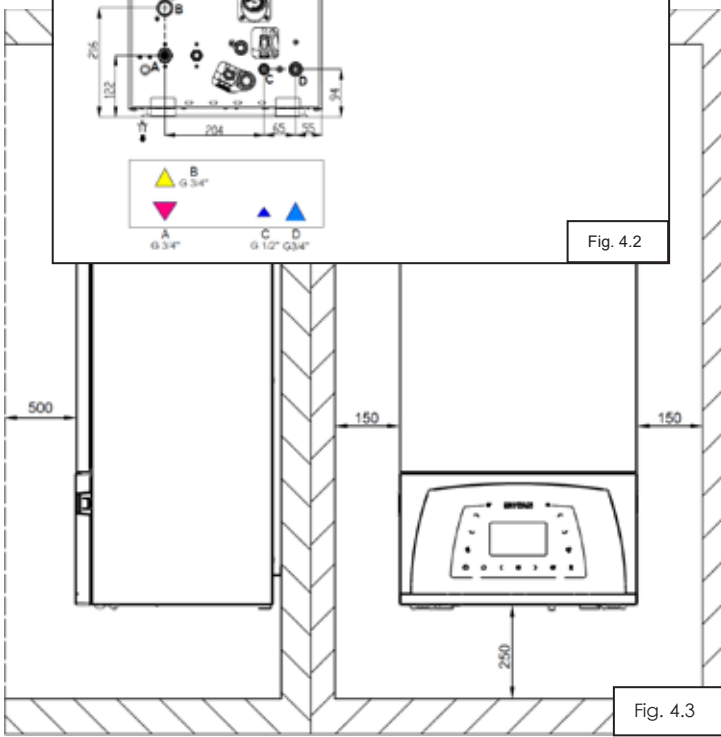
F - Thermal output connector

Fig. 4.2 Dimensions and mounting positions for models **C38GC35-CH2**:



Legend:

- A - Thermal input connector
- B - Fuel input connector
- C - Cold water input connector
- D - Thermal output connector



11.2.2 Minimum necessary distances/ free spaces for mounting

Both for the mounting/ installation of the central heating BOILERS and for later maintenance operations you will need the following minimum distances (fig. 1.3), respectively minimum free spaces for mounting:

- distance to the front part: 500 mm
- distance to the lateral: 150 mm

- distance to the bottom part: 250 mm
- distance to the upper part: 400 mm



Caution!
Danger of damaging the equipment by incorrect setting!
The equipment can be mounted only on a flat, fixed surface.



Note!
Minimum necessary distances/ free spaces for mounting are valid also for mounting with/ within pieces of furniture.

11.2.3 Installing the boiler

- Drill two holes for fixing the center support (1);
- Mark the position of the exhaust / intake duct;
- Mount the support (1) with the supplied screws and screws (2, 3) on the wall (fig.1.4);
- Install the boiler (4) in position.

-for models: **C38GC25V1; C38GC29V1; C38GC35V1**

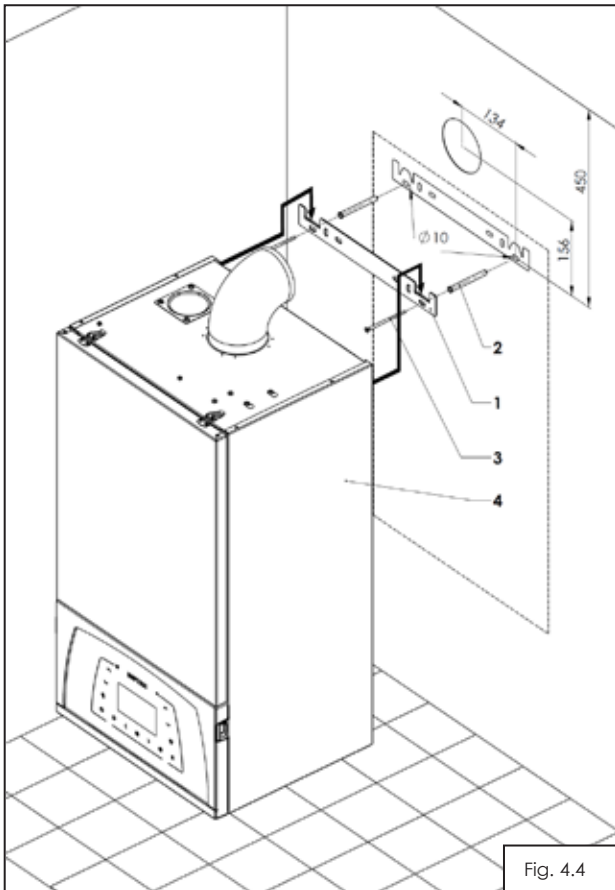


Fig. 4.4

-for models **C38GC25-PV1; C38GC35-CH1V1; C38GC35-CH2V1**

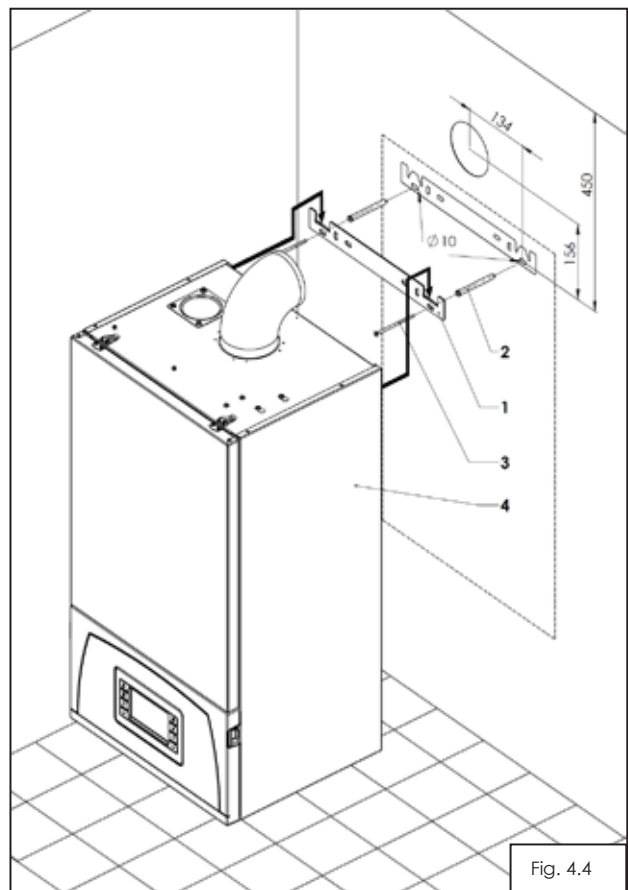


Fig. 4.4

5 Installation



Danger!

Danger of death by poisoning and explosion because of breaches in the gas pipes and connections in case of incorrect installation! Installation and commissioning can be done only by a company authorized and agreed by KÖBER SRL-Vaduri Branch! This company will assume responsibility for the correct installation and commissioning.

5.1 Conditions for the installation of the central heating BOILER

11.1.1 Installation indication

The heating unit will be subject to the corrosion effect, from the moment it is filled with water. In order to grant the guarantee, during the entire warranty period, it is essential that the following assembly instructions be 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, but the annual average must be of 30 mg / m³.
The combustion air must not contain: chlorine, ammonia, alkaline agents, halogenated hydrocarbons, freon, drywall, lint, dirt or dust;
Installing the heating unit near a swimming pool, washing machine or laundry can lead to contamination of the combustion air with these compounds.
- Water PH must be within the following limits: **7.5 <pH 8.5 and if the installation contains aluminum components, it must be under 8.5.**
- **It is recommended to regularly check the pH of the heat transfer fluid, if the value does not fall within the limits given by the manufacturer, it is treated again;**
- Water hardness must be within 5°F <TH 15°F (5°F (French degrees), equivalent to 50 mg CaCO₃ or an equivalent amount of other Ca and Mg salt);
- 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 heating unit, with the fuel valve turned off, in order to ventilate the installation. The opening and closing of the 3-way valve, by permutation in summer / winter also allows a better ventilation of the installation.
- If the heating unit is not used for a long period in the cold season, it is necessary to completely empty the installation in order not to suffer damages due to frost. **The use of antifreeze is not covered by warranty.**

11.1.2 Protection of the BOILER in order to keep the warranty

Before and during installation, the central heating BOILER must be kept away from impurities: construction dust, sand, copper dust, fats etc as well as welding splashes, scoria. In any of these cases, the installation must be washed with clean water mixed with a highly concentrated cleaning agent.

Generally, **in order to keep the warranty it is necessary** to apply any necessary treatment to prevent the contamination of water with the following:

- Black mud (magnetite - Fe₃O₄) formed as a result of the continuous electrolyte corrosion occurring in any installation which is not protected with an inhibitor.
- Red mud (rust - Fe₂O₃) produced during oxidation.
- Limestone deposits that are deposited especially on the hottest areas of the heating unit.

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



Warning!

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

5.2 Gas connecting pipe

Danger!



Danger of death by poisoning and explosion because of breaches in the gas pipes and connections in case of incorrect installation!

Installation of gas pipes is allowed to be performed only by an authorized agent. During installation all legal stipulations, as well as the local regulations of gas distribution companies are to be observed.
When installing the gas pipe it is essential that it is not tensed so as not to create areas of leakage!



Caution!

Maximum safety pressure for the gas valve is 60 mbar! Going above this pressure limite may resul in damage. Work pressure with G20 natural gas functioning must be 20 mbar!



Caution!

Is is obligatory to install a pressure regulator on the fuel input circuit, adjusted at 20 mbar.



Caution!

In case parasite voltage appears on the gas pipe, it can be insulated by installing an electroinsulating piece (according to the Technical Norms for the planning and execution of natural gas input systems).

Heating units of the C38 serie only works by natural gas **NG**. The gas connecting pipe is made of stainless steel with an interior diameter of 12.4 mm. The gas input pipe must not have a diameter smaller than that of the gas connecting pipe of the central heating BOILER. The fuel input must be done according to applicable legal stipulations.

5.3 Connection of the heating unit to the heating installation

When designing the central heating system, please take in consideration the hydraulic characteristic of the pump that equips this boiler model! See chapter 11.3 for pump characteristic.

Caution! Before connecting the central heating BOILER carefully wash the entire heating installation! In this way, you eliminate from the pipes various debris such as welding splashes, scoria, grummet, putty, dirt or similar. Otherwise, these substances can form deposits in the heating switcher and can cause damage or malfunctioning.



Caution!

It is obligatory to install an impurity filter on the return of the thermal circuit installation!

When installing connecting pipes it is essential for these not to be tensed to avoid creating areas of leakage!

Maximum working pressure allowed is 3bar.

Recommended working pressure is 1.5 bar!



Caution!

It is forbidden to use the central heating BOILER without thermal agent or partially filled – danger of explosion!

It is forbidden to use the central heating BOILER if it is not completely aired!

The equipment is provided with a 8l capacity and 1 bar loading pressure expansion vessel. Before installing the equipment, check whether this volume is sufficient. If not, an additional expansion vessel must be installed on the aspiration side of the pump.



Caution!

Check the pressure inside the expansion vessel before commissioning.

Pressure inside the expansion vessel must be 0.8÷1 bar.



Connect the central heating BOILER to the hot water installation.

Warning!

Before connecting the heating unit, carefully wash the entire heating system! In this way, you remove debris such as welding splashes, slag, hemp, putty, rust, coarse dirt or others similar from the pipes. Otherwise, these substances

can be deposited in the heat exchanger and can cause malfunctions.

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

The defects appeared in the thermo-hydraulic circuit of the heating unit, due to the non-washing of the installation (new or old) once the start-up began, are not covered by the commercial warranty.

Indication!



Water pH must be within the following limits: 7.5 < pH 9.5 and if the installation contains aluminum components, it must be less than 8.5, Water hardness must be within the following 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). Defects in the thermo-hydraulic circuit of the heating unit, due to the high hardness of the water are not covered by the commercial warranty.

Connect the heating unit to the district heating system - by means of connections **A** and **E** (fig.4.5) or **A** and **F** for model C38GC35-CH1V1 / C38GC35-CH2V1 (fig. 4.5.1).

A and E (fig. 5.1.1) for 5.1.3) for
C38GC25V1
C38GC29V1
C38GC35V1
C38GC25-PV1

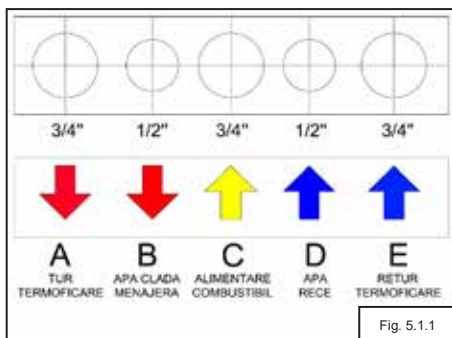


Fig. 5.1.1

A **and F (fig.5.1.2) for C38GC35-CH1V1**

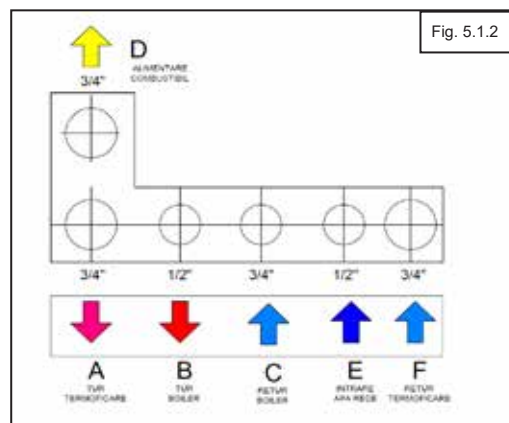


Fig. 5.1.2

A and D (fig.

pentru C38GC35-CH2V1

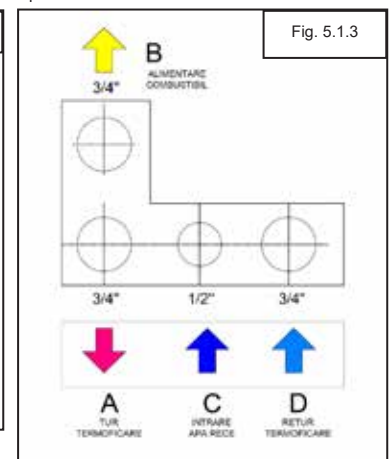


Fig. 5.1.3



Warning!

A mechanical impurity filter (Y filter) must be mounted on the installation return

It is mandatory to mount an anti-magnetite filter on the inlet pipe of the heating circuit 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 heating unit, causing damages to the thermo-hydraulic elements (irreparable damage to the gearbox body, operating noises, etc.)!

If a magnetic filter is mounted, the metal particles will be retained and will no longer be entrained in the boiler body!
The lack of an anti-magnetite filter leads to the loss of the commercial warranty.



It is compulsory to install filters to de-harden the water and a mechanical impurity filter on the cold water input connecting pipe!



Warning!

The use of the heating unit without heat transfer fluid or partially filled is forbidden – danger of explosion; The use of the heating unit without being completely ventilated is forbidden!

In case the water volume in the heating circuit is over 200 liters or if pressure in the heating circuit exceeds 2.5 bar at maximum heating temperature, it is mandatory to mount an extra expansion tank.

The pre-loading pressure of the additional expansion tank must be identical to the pressure in the expansion tank mounted on the heating unit.

5.4 General directions for the hot water circuit

The heating unit is connected to the domestic hot water installation - by connections B and D (fig. 4.5).



Warning!

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

For the production of domestic hot water, the minimum supply flow must be about 3 l / min, and the maximum supply flow must not exceed 8 l / min. For comfort in the operation of domestic hot water (no intermittent start; temperature stability; reaching the target temperature set on the control panel), we recommend using the heating unit at a maximum flow of 7-8 l / min.



Warning!

When installing connecting pipes it is essential for these not to be tensed to avoid creating areas of leakage!

The apparition of pressure shocks (input pressures higher than 3-4 bars in addition to symoultaneously activating quick closing taps) can affect the components of the hydraulic circuit inside the central heating BOILER. We recommend the installation of a pressure regulator adjusted to 3-4 bars!

Damage caused by the apparition of pressure shocks or by the use of higher pressure than recommended on the cold water input circuit is not covered by the warranty!

We recommend the installation of a pressure regulator! Damage caused by the use of pressure higher than recommended on the cold water input circuit is not covered by the warranty!

It is forbidden to install one-way valves on the the cold water input circuit.

The cold water input pipe of the hot water preparation circuit will always be open (closing the network is done only by activating the taps at the consumer points) to allow take-over of possible dilatations on this circuit.

Note!



It is recommended that the distance between the hot water connecting pipe of the central heation BOILER and the nearest consumer is minimum 6m of pipe. Otherwise, there is a risk of scalding.

5.5 Connecting pipe of the condensation output duct



Danger!

Danger of death by leakage of burning gases!

The condensation output duct must not be water-proof connected to a used water pipe because otherwise the internal condensation seal box can be emptied by aspiration and the burning gases can get inside the room where the central heating BOILER is installed.

The condensate resulting from the condensation of water vapor contained in the flue gases is discharged from the heating unit, through the condensate drain tap (fig.5.3), which is located at the bottom of the heating unit. As this condensate is acidic, having a pH of about 3.8 ÷ 5.4, the discharge must be made through a (flexible) plastic pipe with an inner diameter of at least Ø25 mm or more, which is connected at one end to the condensate tap hose and at the other end to a drain pipe to the sewer.

Before putting the heating unit into operation, approx. 1/2 liter of water must be introduced through the flue gas connection (fig.5.2), in order to form a "water plug" in the condensate tap - this prevents the evacuation of gases into the combustion chamber.

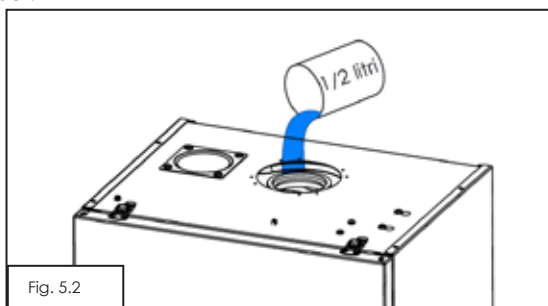


Fig. 5.2

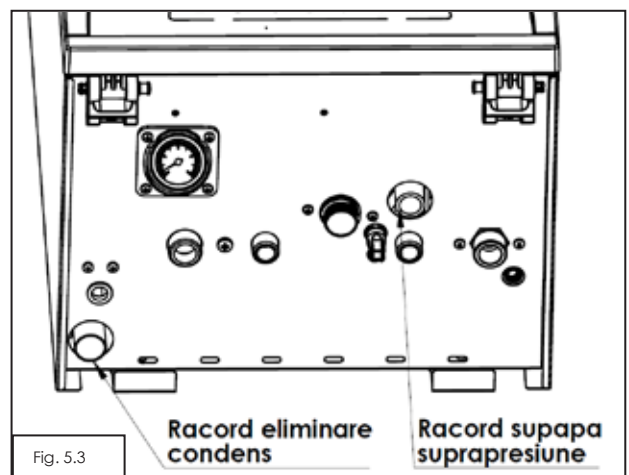


Fig. 5.3

The condensate drain route must be continuous descending (not to present possible areas of condensation stagnation, especially in the situation when crossing areas with risk of frost).

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

Recommended condensate 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. The condensate drain must be as far as possible made so that the shortest path and gravitational flow are chosen. If there is a possibility, it is recommended to eliminate the condensate 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 CONLIFT 1 condensing pump, which can be purchased by the beneficiary from the sales department.

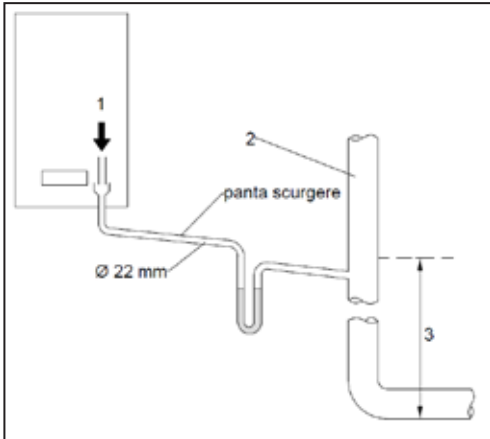


Fig. 5.4 - Condensate removal in ventilated so

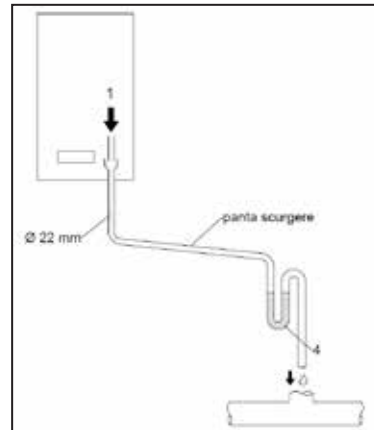


Fig. 5.5 - Condensate removal in the sewer network

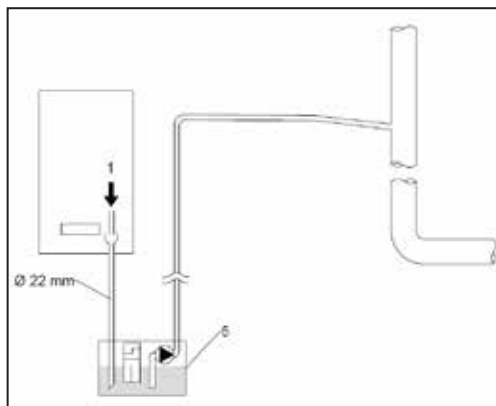


Fig. 5.6 - Condensate removal with the help of the condensating pump

Table 5.1 - Legend of figures 5.4 ÷ 5.6

1.	Condensate tap
2.	Ventilation pipes
3.	Minimum 450 mm and maximum 3 floors of building
4.	Hydraulic closing (swan neck)
5.	Condensing pump



Warning!

In the areas where frost occurs, 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.



Warning!

The absence of water in the condensate tap causes emanations of the smoke evacuated in the ambient air.

5.6 Connecting pipe of the safety valve



Caution!

Danger of hot water burns!

The connecting pipe of the pressing of the safety valve is connected to the drain pipe to the sewage system. Otherwise, there is always the risk of flooding, for which the manufacturer of the central heating BOILER is not responsible.

5.7 Air inlet pipe / burnt gases outlet pipe

The central heating BOILER does not require air plugs in the room where it is installed.

The air necessary for burning to ensure the efficient functioning of the central heating BOILER must be taken from the outside of the building.

The equipment is delivered with a co-axial or dual type air input/ burnt gases output system called an evacuation kit. The equipment is delivered with a standard co-axial evacuation kit. On demand, a dual evacuation kit can be delivered. It is also possible to order additional 45° and 90° corners as well as 0.5m and 1m elongations for both the dual and the co-axial systems.



Caution!

It is obligatory to place central heating BOILER in rooms with proper ventilation systems according to applicable norms. Study the technical instructions before mounting/ installation, commissioning or maintenance or repair work.

Under no circumstances the total length of the co-axial kit, including elongations, is to be longer than 3 m (without the first corner).

Under no circumstances the total length of the dual kit, including elongations, is to be longer than 5 m (without the first corner).



Danger!

It is completely forbidden to use the central heating BOILER without the burnt gases output pipes because it endangers people's life and health of people.

Replacement is to be performed only by authorized personnel following applicable laws and using only original spare parts provided by the producer.

5.8 Electric grid connection

The central heating BOILER must be connected to one-phase network of 230V - 50Hz with protection null.

Dispersion withstand of the earthing switch (earthing) must comply with applicable norms (maximum 4 ohm, and the working null must not have residual current).

Electric powering of the central heating BOILER will be executed from a separate circuit provided with differential protection fuses of 30 mA.

External connections must comply with applicable norms. Connection to the electric grid of the building must allow the entire electric insulation of the central heating BOILER for situations when interventions are required.

Grid connection is done taking into account the symbolism of colours as follows: **Brown** = phase, **Blue** = null, **Green and Yellow** = earthing.



The current plug must be accessible so that the user can easily disconnect it.

Caution!

It is not allowed to mount the central heating BOILER with a defective electric installation or with no earthing.



Danger!

Danger of death by electric shock with electric contacts!

5.8.1 Connecting a temperature controller or an outdoor sensor

The procedure for coupling a temperature controller or an external sensor to the heating unit can be done EXCLUSIVELY by authorized personnel of the partner service companies approved by **KÖBER SRL Vaduri Branch**.

Mounting an outdoor sensor is only useful in the presence of a temperature controller.

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

Technical specifications:

Model:	KST-E-N10
Rated voltage:	max. 5 Vcc
Maximum rated current:	18 mA
Resistance to 25°C (R25):	10kΩ ± 5%
Constant β25/100:	3977 / 3988k ± 1%
Temperature field:	-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 heat transfer fluid is adjusted according to the external climatic conditions, ensuring high comfort and energy savings.

Thus, if the outside temperature increases, the temperature of the heat transfer fluid decreases according to a "compensating curve" (fig. 4.7).



WARNING!

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: - Radiators CH circuit Tset=80°C;
 - Floor CH circuit Tset = 45° C.

SP05	3	6	8	10 RECOMANDED SET	12	15	18	21	24	27	30	33
T °C outside	T °C CH outlet obtained only if the heating temperature is set from the user interface (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

For example, (the adjacent chart fig. 4.8): if a maximum of 70 ° C is desired for the CH in the user interface (redline on the chart) this value can be reached only if SP 05 > 6, for outdoor temperatures of maximum -30 ° C (SP05 = 6 column in the table).

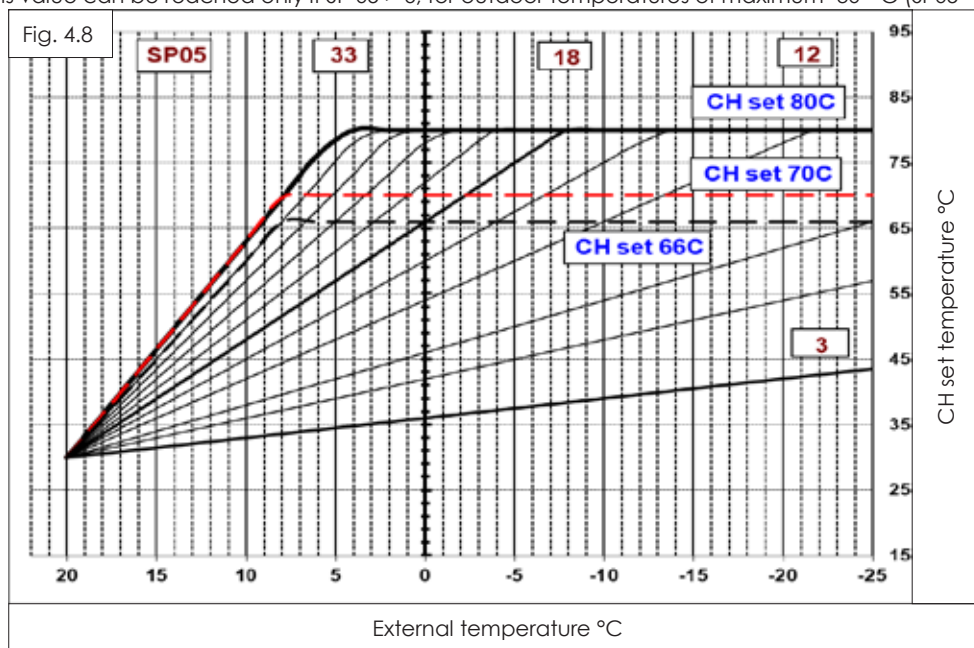


Table 2 - Use of outdoor sensor on the underfloor CH circuit.

SP05	1 FACTORY SET	5	10	15	20	25	30	33
T °C user	T °C CH outlet temperature obtained only if the heating temperature is set from the user interface (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

8.9 Filling and emptying the heating circuit



Caution!

**Filling of the installation can be done only with the fuel tap closed.
Danger of explosion when BOILER is turned on!**

The following operations are executed to fill the installation:

1. open the filling valve (fig. 4.10) of the heating unit and those of the district heating/domestic water installation;
2. charge the heating unit with a pressure around **0.8 bar**, indicated on analog manometer mounted at the bottom of the heating unit ("under the heating unit");
3. remove the pump vent;
4. supply the heating unit with electricity, and the heating unit 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 for 9 times;
5. after performing the 450 second ventilation cycle, check the tightness of the entire system (in case of leaks, remedy the problems);



Fig. 4.9

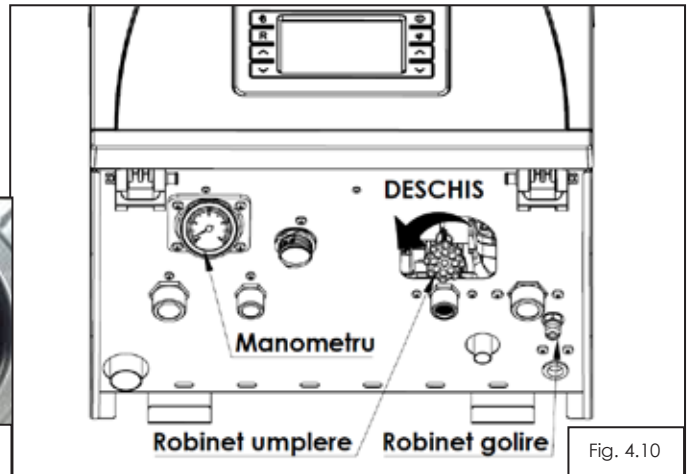





Fig. 4.10

* the figure is informative; the equipment of the purchased power plant may differ

6. continue the ventilation of the heating unit by manual enabling of the ventilation module, for activation long press key **J3** () and the pump will start, with the heating unit in OFF (Stand-by) mode, to deactivate press key **J3** () or by turning on the heating unit from key **J7** -  (**POWER**);
7. adjust the pump operating level (5, 6 or 7m) depending on the installation (see chap. 7.11);
8. continue filling the installation, with the ventilation function on up to **1.1-1.5 bar**;
9. check the tightness of the entire system. In case of losses, remedy the issues occurred;
10. ventilate the radiators;
11. perform 2-3 ventilation cycles of 50-60 seconds until no more noises are heard in the installation, according to the phases described above;
12. check the pressure in the installation indicated on the display/pressure gauge. If necessary, fill it with heat transfer fluid, following the phases above.



Warning! Obligatory operation!

Check the correct functioning of the pump with no fuel in the central heating BOILER.

Functioning of the central heating BOILER with a blocked pump can lead to complete damage of the main heating switch.



Warning! Obligatory operation!

Incorrect airing of the installation can cause damage of the main heat exchanger (see fig 4.9).



Note!

Recommended pressure on the thermal circuit is 1.5 bars.


The following operations are executed to empty the installation:

Emptying is done by means of the emptying tap of the central heating BOILER.

The emptying points must be located in accessible places so as to allow the water to be drained.

To empty the installation, the following operations are performed:

Emptying the heating unit involves the following:

- turn off the heating unit with key **J7** -  (**POWER**) and disconnect the power supply, close the gas valve;
- close the district heating and cold water inlet tap;
- open the drain valve (fig.5.13) and a DHW consumption point.



Caution!

Danger of scalding when emptying the BOILER.

6 Operation instructions

6.1 Control panel type LMC202 - valid for the C38GC25V1, C38GC29V1 and C38GC35V1

The LMC202 control panel (fig.6.1) allows the visualization and modification of the parameters that define the heating unit operation.

It consists of:

- 13 tactile keys (J1 ÷ J13) - tab.6.1
- LCD type display, where the messages (graphic symbols) of communication with the heating unit are displayed: The meaning of the symbols and the display of the digits is presented in tab. 6.2.



Fig. 6.1 User interface – control panel type LMC202

Table 6.1: Control panel keys

Key	Annotation	Description:
J1		Increase the temperature set in winter mode; navigation by menu installation; incrementing the current parameter value installation menu
J2		Temperature decrement set in winter mode; navigation through the installation menu; decrementing the current parameter value installation menu
J3		Switching operation in winter/summer mode; It activates/deactivates the heating unit ventilation function (long press in standby mode)
J4		Activation / deactivation of the holiday function (the heating unit must be in OFF mode)
J5		Exit the installation menu
J6		Decrease LCD brightness
J7		POWER - Heating unit On/Off
J8		Increase LCD brightness
J9		Save service parameter changes; access info mode
J10		Reset the electronic board from an error state
J11		Activation / deactivation of the holiday function (the heating unit must be in OFF mode)
J12		Temperature decrement set in winter mode; navigation through the installation menu; decrementing the current parameter value installation menu
J13		Increase the temperature set in winter mode; navigation by menu installation; incrementing the current parameter value installation menu

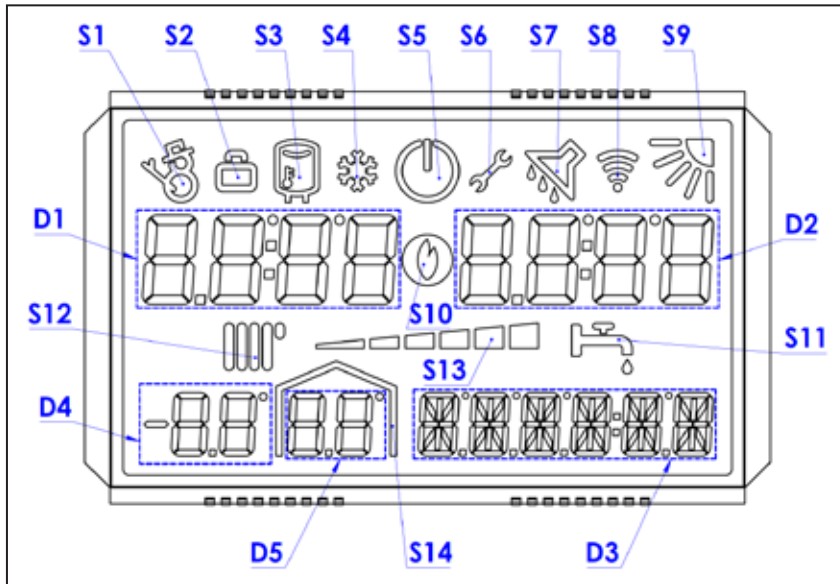


Fig. 6.2 LMC202 control panel display

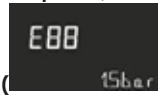
Table 6.2: Control panel keys

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

6.2 Description of functions and graphic contexts displayed by the control panel LMC202

11.2.1 LMC202 Graphical context - Display the E88 error

When the boiler is switched on, on the control panel, the "OFF and 0.0bar" welcome message will be displayed, followed



immediately by the boiler input to the E88 (15bar) error.

This will indicate the need commissioning, by one of the service companies authorized under the laws in force and approved by us, KÖBER SRL. To do so, contact one of the partner companies within your home range listed on the list within the Warranty Certificate.

For testing the boiler at pressure by the installer, pressure is displayed on the analog pressure gauge mounted under the boiler.

Removing the boiler from the E88 error requires:

- breaking the boiler seal (self-destruct label on the left side / central cover).

For the granting of the guarantee, the removal from the E88 error is allowed only to the personnel authorized and approved by KÖBER SRL.

Immediately after exiting 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 for 9 times.**

The self-ventilation function can be interrupted by pressing the J3 key (🔧).

SELF-VENT function will be activated whenever the heating unit is turned off and re-energized (intentionally by the user, or unintentionally by voltage drops); the main condition being that when the power supply is interrupted the heating unit is **in the OFF state** and the minimum pressure condition is met.

11.2.2 LMC202 Graphic context – heating unit start-up

When the heating unit is connected to electricity, it is in an intermediate state for 5 seconds, which is necessary to initialize the system, and the message "OFF" and "0.0 bar" are displayed. From the point of view of the user interface, there are two different operating modalities depending on the heating unit state:

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



Fig. 6.2.1

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

11.2.3 LMC202 LIGHT function

The heating unit display is permanently illuminated, with an intensity that does not disturb the user. For a better display of the display, both in standby mode or operating state, when you press any key the light intensity will increase.

11.2.4 LMC202 Graphic context - Standby state (OFF)

This context is associated with an inactive / standby mode of the heating unit. In standby mode all operating/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 heat transfer fluid in the installation - the activation of this function is signaled by the appearance of the symbol S4 (❄️) on the display;

Entering and exiting this mode is done by pressing the key J5 - ⏻ (POWER) for at least one second. The switching between the two context menus also sets the control panel status from OFF to ON. Key J7 - ⏻ (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 all eventual errors.
- **Automatic ventilation** - it activates automatically when switching on (if the installation is loaded at over 0.7 bar), the heating

unit must be in **OFF** mode; to deactivate, long press key J3 (🔧);

- **Manual ventilation** - to activate / deactivate long press key J3 (🔧);
- **Holiday function** - is activated by briefly pressing the key J4. The activation of the function is signaled by the appearance of

the symbol S2 (🔒), in this mode the boiler will supply thermal agent at temperature 45°C.

- **Comfort** - briefly press key J11 - the activation of the function is signaled by the appearance of the symbol S7 (📶) on the display;

- **VTP (periodical technical inspection)** - is signaled by the appearance of the symbol S6 (🔧) that flashes together with the message OFF (automatically activated every 2 years (+ / - 2 weeks)).

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



Fig. 6.2.2

11.2.5 LMC202 Graphic context - standby state (ON)

Switching to the **ON** mode is performed by long pressing key **J7** -  (**POWER**).

The standby mode is associated with a state of operation of the heating unit in which no combustion request 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 heating unit and respectively make the desired settings.

Operating modes:

Summer operation mode - switching to winter / summer mode is performed by pressing the J3 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 heating unit is in standby mode. Keys J12 and J13 perform increment / decrement of the desired domestic hot water temperature.

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




The symbols **S10** () are also activated - the presence of flame and **S13** () - heating unit 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).



Fig. 6.2.3

Operating mode - winter - switching to winter / summer mode is performed by pressing the J3 key - the symbol S1 appears () **at the top left of the display.**

The temperature set on the CH is displayed on the large digit group on the right (**D1**) when the heating unit is in standby mode. Increment/ decrement of the desired temperature on the district heating circuit is performed by keys **J1** and **J2**.

When the district heating demand is active the symbol **S12** () flashes and the measured temperature of the heat transfer **fluid** will be displayed in the group of large digits on the left (**D1**).

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

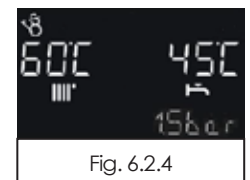





Fig. 6.2.4

Active functions in ON mode:

- **POWER** - switching between ON / OFF state;
- **RESET** - used to reset all eventual errors;
- **J3 key** () - selects the WINTER / SUMMER operating mode;
- **Antifreeze** - it is automatically activated when the temperature on the supply pipe temperature sensor reaches 8 ° C - the activation of the function is

Signaled by the appearance of the symbol **S4** () on the display;

- **Boiler-based operation (accumulation / preparation)** - it is activated from the service parameters and signaled by

the appearance of the symbol **S3** ()

11.2.6 LMC202 Graphic context - error mode

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

- **critical errors**: these errors immediately stop all execution elements and the system is blocked. Exit from a critical error state is reset;
- **normal errors**: these errors prevent combustion demands. Exit from a critical error state is reset;
- **information errors**: these errors do not stop the operation of the heating unit and they are only displayed. Exit from an information error state is made automatically, when the cause of the error disappears.

Exit from the error state is made by pressing the key **J10** () + **J9** () for 3.5 sec.

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 an arbitrary error display (in this case E20).



Fig. 6.2.5


11.2.7 LMC202 Graphic context - ECONOMIC submenu

The **ECONOMIC** function can be activated / deactivated by pressing the key **J4** () , **with the heating unit in OFF mode.**

If the ECONOMIC function is activated, the symbol that appears on the display is S2 () , the heating unit no longer takes into account the temperature set for heating mode. In this case the combustion cycle on heating mode stops at 50°C and restarts at 35°C. This function cannot be active at the same time as the Comfort function. The Comfort function has priority.


11.2.8 LMC202 Graphic context - COMFORT submenu

The COMFORT function can be activated / deactivated by pressing the key J11 () , with the heating unit in OFF state.

If the COMFORT function is activated, the symbol appears on the display S7 () , 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 domestic hot water temperature is 8 ° C (fixed value) higher than the set DHW temperature. If the water heated this way is not consumed for one hour, the COMFORT function is automatically disabled.

11.2.9 LMC202 Graphic context - PTI function enabling - Periodical Technical Inspection

PTI function - Periodical Technical Inspection is automatically enabled every 2 years (+ / - 2 weeks).

The S6 () SERVICE symbol will flash on the display near the PTI date and if the heating unit is on standby the flashing message "OFF" is also displayed.

In order to maintain the warranty, please call the service company that performed the start-up, in order to perform the PTI type mandatory technical inspection.

The PTI type mandatory technical inspection is regulated by the specific ISCIR legislation and it is not reimbursed by KOBER LTD or by the partner service company.

11.2.10 LMC202 Graphic context - SERVICE submenu

In the SERVICE submenu, different operating parameters of the heating unit can be viewed / modified / verified (SP - service parameters, Co - commands buffer - it contains two commands SAVE and CLEAR, EI - informative elements buffer, SI - buffer with information about the sensors, HP - statistic parameters, EC - error counters).

Access is allowed only to the authorized service company.

6.3 Control panel type LMC201 - valid for the C38GC25-PV1

The LMC201 control panel (fig.6.3) allows the visualization and modification of the parameters that define the heating unit operation.

It consists of:

- 8 tactile keys (J1 ÷ J13) – fig 6.3 and tab.6.3
- LCD type display, where the messages (graphic symbols) of communication with the heating unit are displayed: The meaning of the symbols and the display of the digits is presented in tab. 6.4 and fig 6.4.



Fig. 6.3 LMC201 control panel

Table 6.3: Control panel keys

Key	Annotation	Description:
J1		Switching operation in winter/summer mode; It enables/disables the heating unit ventilation function (long press in standby mode)
J2		Resetting the electronic board from an error state; exit the installation menu
J3		Increase the winter mode set temperature; navigation through the installation menu; incrementing the current parameter value installation menu
J4		Temperature decrement set in winter mode; navigation through the installation menu; decrementing the current parameter value installation menu
J5		POWER - Heating unit On/Off
J6		Activating the comfort function
J7		Increase the winter mode set temperature; navigation through the installation menu; incrementing the current parameter value installation menu
J8		Temperature decrement set in winter mode; navigation through the installation menu; decrementing the current parameter value installation menu

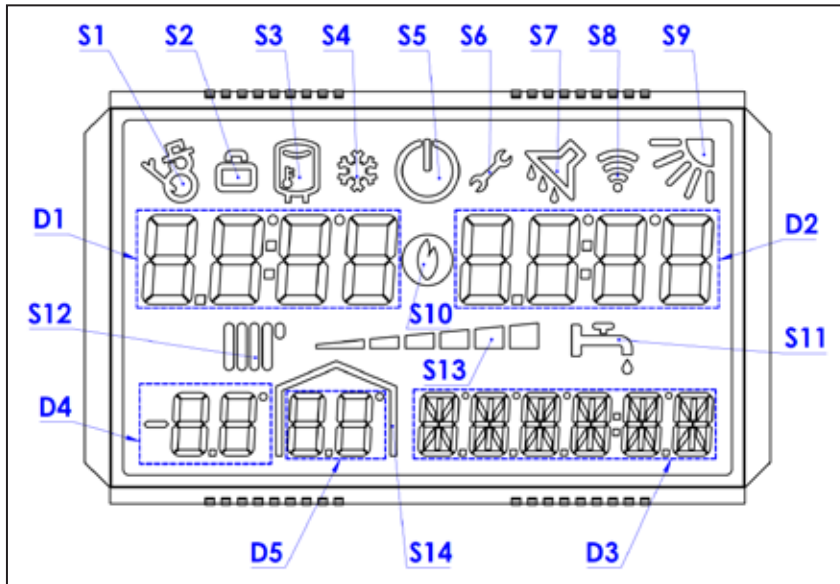


Fig. 6.4 LMC201 control panel display

Table 6.4: Description of graphic symbols in the LCD display area

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

6.4 Description of functions and graphic contexts displayed by the control panel LMC201

11.4.1 LMC201 Graphical context - Display the E88 error

When the boiler is switched on, on the control panel, the "OFF and 0.0bar" welcome message will be displayed, followed



immediately by the boiler input to the E88 (15bar) error.

This will indicate the need commissioning, by one of the service companies authorized under the laws in force and approved by us, KÖBER SRL. To do so, contact one of the partner companies within your home range listed on the list within the Warranty Certificate.

For testing the boiler at pressure by the installer, pressure is displayed on the analog pressure gauge mounted under the boiler.

Removing the boiler from the E88 error requires:

- breaking the boiler seal (self-destruct label on the left side / central cover).

For the granting of the guarantee, the removal from the E88 error is allowed only to the personnel authorized and approved by KÖBER SRL.

Immediately after exiting 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 for 9 times.**

The self-ventilation function can be interrupted by pressing the J3 key (🔧).

SELF-VENT function will be activated whenever the heating unit is turned off and re-energized (intentionally by the user, or unintentionally by voltage drops); the main condition being that when the power supply is interrupted the heating unit is **in the OFF state** and the minimum pressure condition is met.

11.4.2 LMC201 Graphic context – heating unit start-up

When the heating unit is connected to electricity, it is in an intermediate state for 5 seconds, which is necessary to initialize the system, and the message "OFF" and "0.0 bar" are displayed. From the point of view of the user interface, there are two different operating modalities depending on the heating unit state:

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



Fig. 6.2.1

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

11.4.3 LMC201 LIGHT function

The heating unit display is permanently illuminated, with an intensity that does not disturb the user. For a better display of the display, both in standby mode or operating state, when you press any key the light intensity will increase.

11.4.4 LMC201Graphic context - Standby state (OFF)

This context is associated with an inactive / standby mode of the heating unit. In standby mode all operating/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 heat transfer fluid in the installation - the activation of this function is signaled by the appearance of the symbol S4 (❄️) on the display;

Entering and exiting this mode is done by pressing the key J5 - ⏻ (POWER) for at least one second. The switching between the two context menus also sets the control panel status from OFF to ON. Key J7 - ⏻ (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 all eventual errors.
- **Automatic ventilation** - it activates automatically when switching on (if the installation is loaded at over 0.7 bar), the heating unit must be in **OFF** mode; to deactivate, long press key J3 (🔧);

- **Manual ventilation** - to activate / deactivate long press key J3 (🔧);

- **Holiday function** - is activated by briefly pressing the key J4. The activation of the function is signaled by the appearance of the symbol S2 (🔒), in this mode the boiler will supply thermal agent at temperature 45°C.

- **Comfort** - briefly press key J11 - the activation of the function is signaled by the appearance of the symbol S7 (📶) on the display;

- **VTP (periodical technical inspection)** - is signaled by the appearance of the symbol S6 (🔧) that flashes together with the message OFF (automatically activated every 2 years (+ / - 2 weeks)).

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




Fig. 6.2.2

11.4.5 LMC201 Graphic context - standby state (ON)

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

The standby mode is associated with a state of operation of the heating unit in which no combustion request 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 heating unit and respectively make the desired settings.

Operating modes:

Summer operation mode - switching to winter / summer mode is performed by pressing the J3 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 heating unit is in standby mode. Keys **J7** and **J8** perform increment / decrement of the desired domestic hot water temperature.

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

The symbols **S10** () are also activated - the presence of flame and **S13** () - heating unit 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).



Fig. 6.2.3

Operating mode - winter - switching to winter / summer mode is performed by pressing the J1 key - the symbol S1

appears () **at the top left of the display.**

The temperature set on the CH is displayed on the large digit group on the right (**D1**) when the heating unit is in standby mode. Increment/ decrement of the desired temperature on the district heating circuit is performed by keys **J3** and **J4**.

When the district heating demand is active the symbol **S12** () flashes and the measured temperature of the heat transfer **fluid** will be displayed in the group of large digits on the left (**D1**).

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

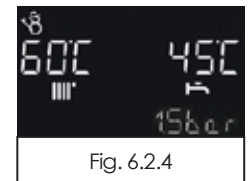


Fig. 6.2.4

Active functions in ON mode:

- **POWER** - switching between ON / OFF state;
- **RESET** - used to reset all eventual errors;

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

- **Antifreeze** - it is automatically activated when the temperature on the supply pipe temperature sensor reaches

8 ° C - the activation of the function is signaled by the appearance of the symbol **S4** () on the display;

- **Boiler-based operation (accumulation / preparation)** - it is activated from the service parameters and signaled by

the appearance of the symbol **S3** ()

11.4.6 LMC201 Graphic context - error mode

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

- critical errors: these errors immediately stop all execution elements and the system is blocked. Exit from a critical error state is reset;
- normal errors: these errors prevent combustion demands. Exit from a critical error state is reset;
- information errors: these errors do not stop the operation of the heating unit and they are only displayed. Exit from an information error state is made automatically, when the cause of the error disappears.

Exit from the error state is made by pressing the key **J2** ()

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 an arbitrary error display (in this case E20).



Fig. 6.2.5


11.4.7 LMC201 Graphic context - ECONOMIC submenu

The **ECONOMIC** function can be activated / deactivated by pressing the key **J1** () and **J6** () , with the heating unit in **OFF mode**.

If the ECONOMIC function is activated, the symbol that appears on the display is S2 () , the heating unit no longer takes into account the temperature set for heating mode. In this case the combustion cycle on heating mode stops at 50°C and restarts at 35°C. This function cannot be active at the same time as the Comfort function. The Comfort function has priority.


11.4.8 LMC201 Graphic context - COMFORT submenu

The COMFORT function can be activated / deactivated by pressing the key J6 () , with the heating unit in OFF state.

If the COMFORT function is activated, the symbol appears on the display S7 () , 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 domestic hot water temperature is 8 ° C (fixed value) higher than the set DHW temperature. If the water heated this way is not consumed for one hour, the COMFORT function is automatically disabled.

11.4.9 LMC201 Graphic context - PTI function enabling - Periodical Technical Inspection

PTI function - Periodical Technical Inspection is automatically enabled every 2 years (+ / - 2 weeks).

The S6 () SERVICE symbol will flash on the display near the PTI date and if the heating unit is on standby the flashing message "OFF" is also displayed.

In order to maintain the warranty, please call the service company that performed the start-up, in order to perform the PTI type mandatory technical inspection.

The PTI type mandatory technical inspection is regulated by the specific ISCIR legislation and it is not reimbursed by KOBER LTD or by the partner service company.

11.4.10 LMC201 Graphic context - SERVICE submenu

In the SERVICE submenu, different operating parameters of the heating unit can be viewed / modified / verified (SP - service parameters, Co - commands buffer - it contains two commands SAVE and CLEAR, EI - informative elements buffer, SI - buffer with information about the sensors, HP - statistic parameters, EC - error counters).

Access is allowed only to the authorized service company.

7 COMMISSIONING



Danger!
Commissioning work is only permitted by the authorized technician.
In order to benefit from all the functions of the boiler for a long time, it is recommended to perform all the works described below.



Danger!
Danger of death by electric shock to electrical contacts!


7.1 Commissioning work

In commissioning works, the following steps must be taken:

Tab. 7.1 Work steps for commissioning		
Nr.	Working Stage	The following operations are performed:
		At commissioning
1.	Check the air / gas intake / outlet kit connection mode	•
2.	Measurement of power supply parameters	•
3.	Checking the boiler connection to the power grid	•
4.	Check the pressure in the expansion vessel with the membrane	•
5.	Check the presence of magnetic filter on the return of the installation	•
6.	Filling and emptying the heating system	•
7.	Gas supply	•
8.	Starting the boiler	•
9.	Adjustment of fuel mixture and quantity	•
10.	Measurement of static pressure and dynamic gas supply pressure	•
11.	Maximum power setting on CH and DHW depending on installation	•
12.	Pump speed adjustment according to installation requirement (factory set at 5m)	•
13.	Setting additional features	•
14.	Installation of the room thermostat and outdoor sensor	•
15.	Check the presence of softener filter + impurities on the domestic hot water inlet circuit	•
16.	Checking safety features	•
17.	Exhaust system tightness test	•
18.	Verification of gas tightness	•
19.	Shut down the boiler safely	•
20.	User training	•

7.2 Starting the boiler and choosing the operating mode:

11.2.1 Starting the boiler - control panel LMC202 – for models C38GC25V1; C38GC29V1; C38GC35V1

To start the heating unit, press key J7 -  (POWER) fig.7.5.

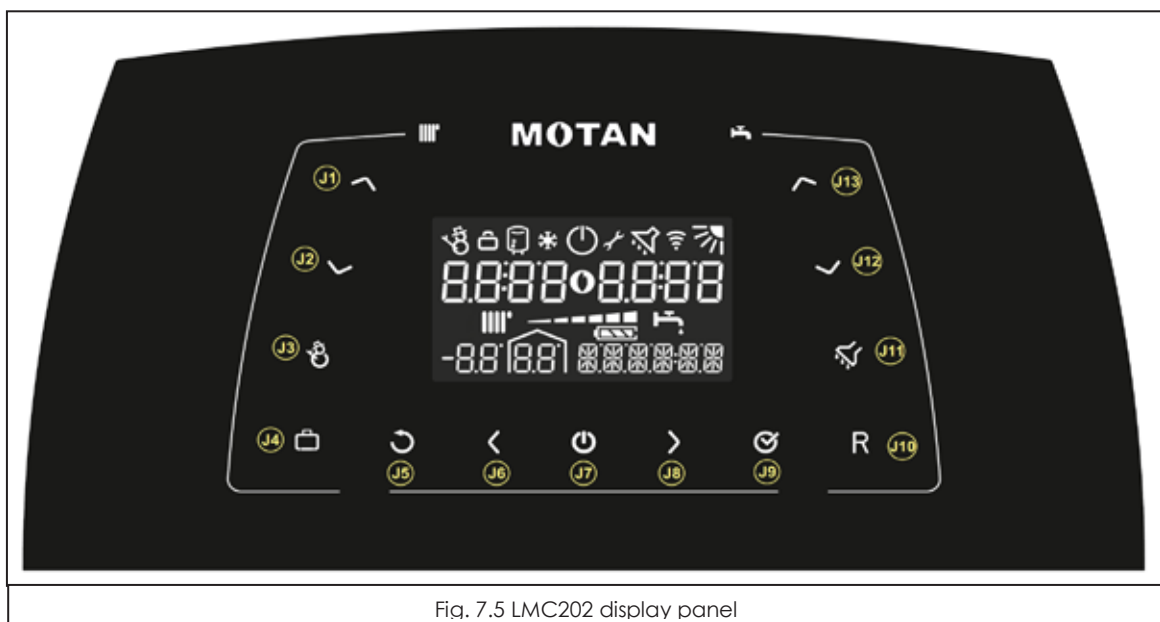


Fig. 7.5 LMC202 display panel

Selection of winter / summer operating mode

By pressing key **J3** (🔁) one can change the operating mode from winter to summer mode and vice versa. This is displayed on the display; the symbol **S1 / S9** will be activated.

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

The temperature set on the CH is displayed on the large digit group on the left (**D1**) when the heating unit is in standby mode. Increment/ decrement of the desired temperature on the district heating circuit is performed by keys **J1** and **J2**.

When the district heating demand is active the symbol **S12** (🔥) flashes and the measured temperature of the heat transfer fluid will be displayed in the group of large digits on the left (**D1**).

The symbols **S10** (🔥) - flame presence and **S13** (📊) - heating unit modulation are also activated.

Water temperature control on the domestic hot water circuit - symbol S9 (🔥) is displayed.

The temperature set on the DHW is displayed on the large digit group on the right (**D2**) when the heating unit is in standby mode. Keys **J12** and **J13** perform increment / decrement of the desired domestic hot water temperature.

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

The symbols **S10** (🔥) - flame presence and **S13** (📊) - heating unit modulation are also activated.

11.2.2 Starting the boiler - control panel LMC201 – for models C38GC25-PV1; C38GC35-CH1V1; C38GC35-CH2V1;

To start the heating unit, press key **J5** - (🔌) (POWER) fig.7.5.



Fig. 7.5 LMC201 control panel

Selection of winter / summer operating mode

By pressing key **J1** (🔁) one can change the operating mode from winter to summer mode and vice versa. This is displayed on the display; the symbol **S1 / S9** will be activated.

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

The temperature set on the CH is displayed on the large digit group on the left (**D1**) when the heating unit is in standby mode. Increment/ decrement of the desired temperature on the district heating circuit is performed by keys **J3** and **J4**.

When the district heating demand is active the symbol **S12** (🔥) flashes and the measured temperature of the heat transfer fluid will be displayed in the group of large digits on the left (**D1**).

The symbols **S10** (🔥) - flame presence and **S13** (📊) - heating unit modulation are also activated.

Water temperature control on the domestic hot water circuit - symbol S9 () is displayed.

The temperature set on the DHW is displayed on the large digit group on the right (D2) when the heating unit is in standby mode. Keys J7 and J8 perform increment / decrement of the desired domestic hot water temperature.

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

The symbols S10 () - flame presence and S13 () - heating unit modulation are also activated

11.2.3 Functioning as domestic hot water BOILER (DHW)

The BOILER can function as DHW in both seasons – winter and summer.

The DHW request has priority over the heating request in the „winter“ mode.

The BOILER can function as instant DHW or as accumulation boiler DHW (the boiler is purchased separately). For the functioning of the BOILER as an accumulation boiler DHW BOILER please address an authorised service company.

In instant regime, the minimum flow of hot water detected by the BOILER is 2.4 l/min, respectively 3 l / min at C38GC35 *, and the maximum supply flow must not exceed 8 l / min.

For confort in using DHW function we recommend to exploit the BOILER at a flow of approximately 7-8 l/min.

When the BOILER functions with low flows, the BOILER functions continuously at the minimum charge as long as the hot water temperature is under the threshold limit of 63°C. When the hot water temperature reaches the mentioned limit of 63°C, the burner is closed and a new burning will happen when the hot water temperature is lower than the limit of 60°C.

When the BOILER functions with high flows, the hot water temperature will be the opposite of the hot water flow, but lower than the set temperature.

With instant DHW configuration on request the **CONFORT** function can be activated.

This function allows the delivery of hot water as soon as possible, while keeping the boiler hot. If the function is active, the boiler starts when the hot water temperature is equal to the set hot water temperature; the boiler stops when the hot water temperature is 8°C (fixed value) higher than the set hot water temperature. If the water heated in this way is not consumed within one hour, the **CONFORT** function is automatically deactivated.

11.2.4 Domestic hot water operation via an individual boiler connected to the boiler (see chapter 11 " Operating modes ")

For hot water DHW operation, contact your authorized service provider, approved and trained by KOBER SRL Vaduri Branch! C38GC25; C38GC29; C38GC35; C38GC25-P boilers can work with an accumulation boiler to produce domestic hot water in accumulation mode.

C38GC35-CH1V1 and C38GC35-CH2V1 (boiler versions designed only for central heating preparation) can work with a hot-water tank with coil, for domestic hot water production.

The boilers can work this way for both seasons ("Winter" and "Summer").

DHW heating demand by boiler is the priority of heating demand in AT mode.

If the operation with a storage/preparation tank is set, DHW demand is triggered by the boiler temperature sensor.

The boiler will operate in DHW mode when the water temperature in the tank drops below the value set by user. To homogenize the water temperature in the boiler, the boiler pump will continue to operate for a while (indicated by parameter SP:17) after any burning cycle.

For any type of boiler, the user will set DHW temperature in the boiler. The boiler will provide hot water at 70 ° C. The user can limit hot water temperature from the boiler circuit board. In the case of continuous operation of the boiler at minimum capacity in DHW mode, the boiler water temperature might exceed the value of 70 ° C. Therefore, for safety reasons, the burner is off (the gas valve will be closed) when the boiler water temperature reaches 73 ° C (fixed value); circulation pump will continue to operate. A new ignition will take place after the water temperature drops below 70°C

In case the boiler is configured to work with boiler, the function ANTILEGIONELLA is activated automatically. This means that the boiler temperature is maintained at an elevated temperature for an hour, once every week.

11.2.5 Functioning as heating BOILER (HS)

The BOILER functions in this mode when „winter“ season is selected. For the selection of the type of heating installation (floor or radiators) please contact an authorised service company.

If a thermoregulator is connected to the electronic board, the BOILERS functions in thermal mode only when the surrounding temperature is lower than the set temperature in the thermoregulator.

11.2.6 Preset functions related to BOILER safety

1. Anti-freezing protection function. If the temperature in the installation drops below 9°C, the system turns on the heating at minimum charge until the temperature reaches 30°C.

2. Post-circulation of the hot water and heating pump function. The post-circulation cycle starts only if the system is not in the **BURNING** state.

Advantages:

a) it prevents the water from becoming BOILERary at high temperatures inside the heat switch. In this way, calcareous deposits are reduced significantly

b) it prevents water from boiling inside the heat switch in the post-heat interval.

These advantages have as result the protection of the heat switch.

3. Pump anti-blocking system and three-way valve.

If the BOILER did not go through a burning cycle in the last **24h**, the pump will be started for **12 seconds** to avoid its blocking. In this time the three-way valve is also activated and deactivated.

4. Post-ventilation

After each BOILER stop, the ventilator still functions for some time to evacuate completely the burning gases out of the BOILER and also the water vapours they contain. In this way, both the ventilator control electric circuit and the primary heat switch, which cools down partially, are protected.

5. "Legionella" bacteria prevention function

This function is active for the functioning of the BOILER as accumulation boiler WHW.

When hot water is prepared in the boiler, the ANTILEGIONELLA function is activated automatically. This function implies that once a week the temperature of the water in the boiler is kept at the value of 65°C.

6. Deaeration function

This function will be activated whenever the control panel is removed and energized (intentionally by the user, or unintentionally by dropping the voltage) for 450 seconds. The function will only be activated if, when the power supply is interrupted, the boiler is in the OFF state and the pressure condition (minimum 0.7 bar) is met.

7.3 BOILER switch off in safety conditions

If the user observes abnormal functioning of the equipment, if error codes are displayed repeatedly or if the user cannot understand the actions of the central heating BOILER, the user must stop the functioning of the BOILER immediately and in maximum safety conditions. For this, the user must perform the following operations:

- Press **POWER** key and interrupt the functioning of the BOILER;
- Disconnect the central heating BOILER from the main power line by unplugging it (if applicable);
- Interrupt the fuel circuit by turning off the gas taps;
- Interrupt the flow of house water and of heated water by turning off the corresponding taps for these circuits;

After the BOILER is switched off in safety conditions, the user will contact the authorized service company in the area.

7.4 User training

It is obligatory for the specialized personnel commissioning the BOILER to instruct the user about the following aspects:

1. Central heating BOILER switch on/ off procedure in safety conditions by checking the following elements:

- electrical power connection;
- fuel (gas) connection;
- feeding and filling the thermal circuit;
- the BOILER filling tap must be turned off;
- the pressure in the installation by reading the control panel (**1.5bar**);
- the BOILER taps on the house water circuit must be turned on.

2. The functioning way of the BOILER and possible problems that may occur. Also each key and symbol on the control panel must be explained.

3. Warn the user that a drop in the water pressure of the system is caused by loss of thermal agent which needs to be mended before using the BOILER again.

4. Warn the user on the works performed on the air/ gases input/ output systems. Warn the user that **changing them is strictly forbidden**.

5. It is recommended that the user should have the BOILER verified by an authorized person at least once a year.

6. Warn the user about the the precautions that need to be taken against freezing.

7. Hand the user the user manual of the central heating BOILER.

At the end of training a commissioning statement is signed (table 2), by which the user signs that they are aware of the correct way of using the central heating BOILER. .

This statement is also signed by the authorized person who commissioned the central heating BOILER.

The authorised person who commissions the BOILER has the right to refuse to sign the BOILER commissioning statement if they notice defects of the local connecting installations and will not sign the commissioning statement until these defects have been remedied.

7.5 Quality Conditions and Warranty

The company KÖBER S.R.L. - VADURI BRANCH as the manufacturer, guarantees the correct functioning of the central heating BOILER if are observed ALL conditions for the installation, commissioning, use and periodical technical revision established in the "Warranty Certificate" given by the manufacturer and signed by the authorized company in the presence of the beneficiary when the product is purchased.

The Warranty Certificate that comes with the product details all the limits of the warranty. Please carefully follow the directions in the Warranty Certificate and before reporting any malfunctioning of the BOILER make sure that all the local connecting installations are of the required quality!



Caution!

Not observing the conditions of the warranty certificate results in losing warranty.

8 INSPECTION AND MAINTENANCE

8.1 Inspection and maintenance intervals

It is obligatory to perform the periodical technical inspection in accordance to applicable law.

In the warranty period of the BOILER the periodical technical inspection will be performed by companies authorised by KÖBER S.R.L. - VADURI BRANCH.

In order to ensure permanent availability, safety in functioning, efficiency and extended working life, it is recommended that a yearly technical inspection should be performed by the authorized agreed company. This is why we recommend that you sign a service and maintenance agreement.

It is recommended that this inspection should be performed before the cold season when the BOILER is used at full capacity.



Danger!

Inspections, maintenance and repair work are allowed only to technicians authorised and agreed by KÖBER S.R.L. - VADURI BRANCH.

Not having inspections/ maintenance work can result in material and physical damage.



In order to benefit from all the BOILER function for an extended period of time we recommend the use of original spare parts.

8.2 Maintenance works

For keeping the product in perfect state of work, the following maintenance steps must be followed:

Tab.8.1 Work stages for maintenance work			
No.	Work stage	To be done:	
		General (each 2 year)	On demand
1.	Disconnect from the electric grid and turn off gas power supply	•	
2.	Turn off installation connecting taps; gas boiler de-pressurizing and emptying, if necessary.	•	
3.	Check and cleaning of the main heating switch		•
4.	Check the lighting/ ionizing electrode		•
5.	Check pressure in the expansion vessel	•	
6.	Check the sieves on the cold water input circuit and thermal output circuit	•	
7.	Check connections	•	
8.	Check and clean the condensate trap	•	
9.	Check safety elements	•	
10.	Check electric connections	•	
11.	Check pipes and gas valve tightness	•	
12.	Check the gas valve closing function	•	
13.	Check gas evacuation installation	•	
14.	Check adjustment devices (ambient thermostat, exterior sensor) if the case may be	•	

9 Error signals

Possible errors of the system are indicated by the following codes which appear on the display. Meaning of error signals which appear on the display:

Code	Class	Non-Volatile	Meaning	Resetting mode
E01	C	YES	-the quality of the power supply is not in the parameters; - the connection between the electronic board and the power outlet is not correct, generating imperfect contacts.	AUTORESET to the disappearance of cause
E02	C	NO	- failure of the electronic board due to electromagnetic interference on the external power supply system of the boiler. On the same electric circuit with the boiler there are consumers generating such interference: washing machine, conditioner air conditioners or other appliances. - failure of the electronic board due to excessive humidity inside the electronic box (the environmental conditions for the boiler installation are not observed).	AUTORESET to the disappearance of cause
E04	C	NO	-breaking the ribbon cable between the electronic board and the display; - keys on the display locked (manually or mechanically locked under the display sheet). Any key pressed for more than 17 seconds displays the display E04.	AUTORESET to the disappearance of cause
E06	C	NO	- Frequent resetting of the electronic board. In 3 hours more than 75 self-resetting, due to the fact that the power supply is not in the parameters.	Manual reset from RESET button
E07	N	NO	- EEPROM manufacturer and/or installer parameters corrupted due to inadequate communication between processors.	Manual reset from RESET button
E08	C	YES	- EEPROM installer parameter corrupted due to an incorrect connection on the 230Vac supply circuit between the electronic board and the power supply or other field element, powered by 230Vac, in the boiler.	Manual reset from RESET button
E10	N	NO	- water pressure in the system is less than 0.8 bar (due to the heating system); - water pressure in the system is higher than 3.5 bar (due to the heating system); - pressure sensor supply cable with imperfect or interrupted contact; - wrong pressure sensor signal (decalibration).	AUTORESET to the disappearance of cause
E11	N	YES	The rapid increase in output water temperature (low flow or pump lock - the option with flow switch)	AUTORESET to the disappearance of cause
E13	N	NO	The turn / return temperature difference too high, caused by: air in the installation; CH flow too low; low installation pressure; temperature sensor defective.	AUTORESET to the disappearance of cause
E20	C	YES	-Flag (flame failure after 3 ignition attempts) caused by: -problems on the gas supply network: lack of gas; low gas pressure in the network; gas meter / defective network regulators; -presence of condensate (water) in the combustion gas.	Manual reset from RESET button
E22	C	YES	-defence in the flame detection phase, invalid ionization current signal.	Manual reset from RESET button
E23	C	YES	- the current ionization outside the combustion cycle.	Manual reset from RESET button
E25	C	YES	-supply voltage variation / interruptions / gaps / variations of frequency / higher / lower frequency variations than standard ones may lead to permanent blocking in the E25 error, depending on the state of boiler.	Manual reset from RESET button
E26	C	YES	- Flue gas emissions: incorrectly installed kit; with incorrect length or slope; - the interrupted air source; - activating the over-temperature thermostat; - over-temperature defective thermostat.	Manual reset from RESET button

Code	Class	Non-Volatile	Meaning	Resetting mode
E30	N	YES	Failure of flue gas sensor	Manual reset from RESET button
E31	N	NO	Failure turn heating sensor	AUTORESET to the disappearance of cause
E32	I	NO	Failure return heating sensor	AUTORESET to the disappearance of cause
E35	I	NO	Defective external temperature sensor	AUTORESET to the disappearance of cause
E37	N, I	NO	Boiler's temperature sensor 1 faulty	AUTORESET to the disappearance of cause
E38	N, I	NO	Boiler's temperature sensor 2 faulty <u>Not applied in this chase</u>	AUTORESET to the disappearance of cause
E40	N	YES	Flue gas temperature is too high	Manual reset from the RESET button, to the disappearance of
E41	N	NO	CT heating flow/turn temperature is too high or too low	AUTORESET to the disappearance of cause
E42	I	NO	CH heating return temperature is too high or too low	AUTORESET to the disappearance of cause
E45	I	NO	External temperature too high	AUTORESET to the disappearance of cause
E47	N, I	NO	Boiler's temperature sensor 1 indicated is too low / high	AUTORESET to the disappearance of cause
E48	N, I	NO	Boiler's temperature sensor 2 indicated is too low / high <u>Not applied in this chase</u>	AUTORESET to the disappearance of cause
E50	N	YES	-problems on fan power supply; -Function problems.	Manual reset from the RESET button
E51	N	YES	Error in fan command / status	Manual reset from the RESET
E52	N	YES	- Improper fan function -eg. fan speed set inadequately.	Manual reset from the RESET button
E88	I	YES	This will indicate the need commissioning	Manual reset (Removing strap connected to outdoor sensor)

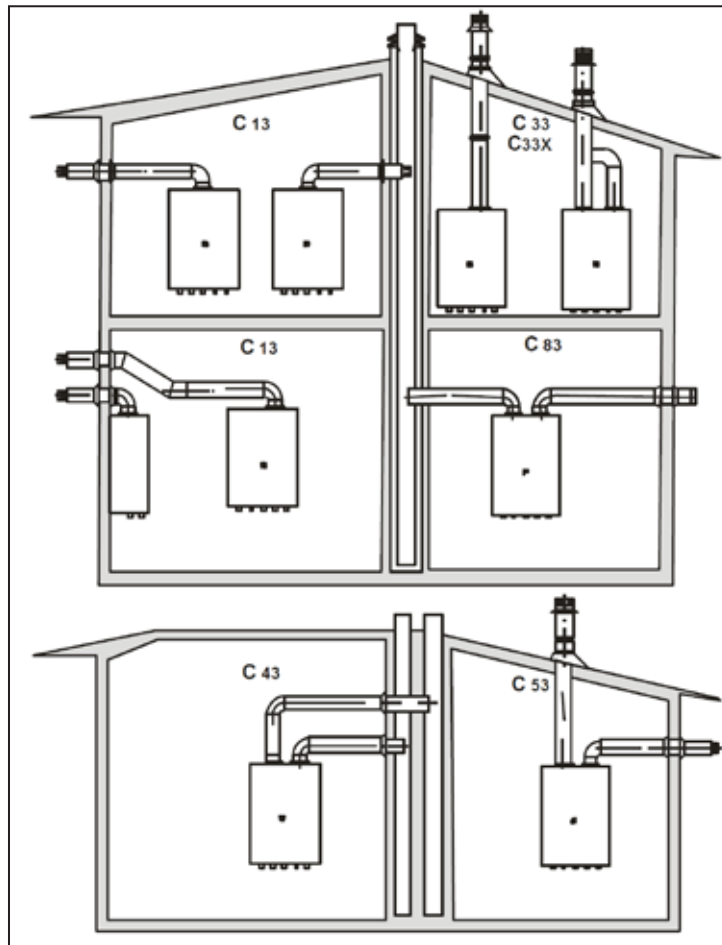
10 ELIMINATION OF ELECTRICAL AND ELECTRONIC WASTE (DEEE directive)



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 more information about recycling of this product, please contact your local household waste disposal service.

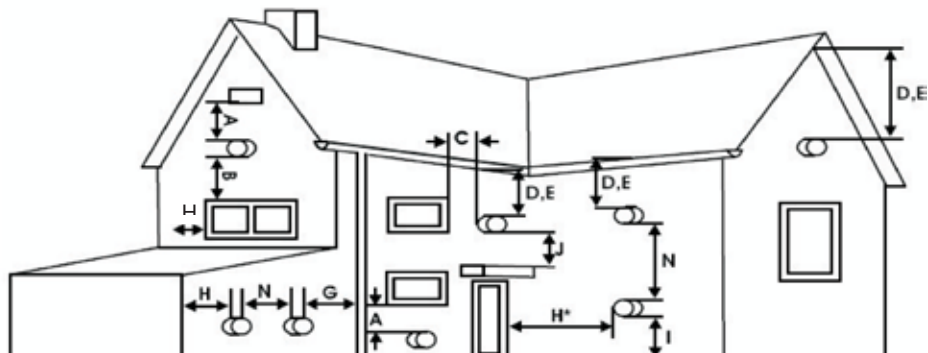
11 Drawings necessary for mounting and installation

11.1. Types of configurations for the mounting kit for air input/ burnt gases output



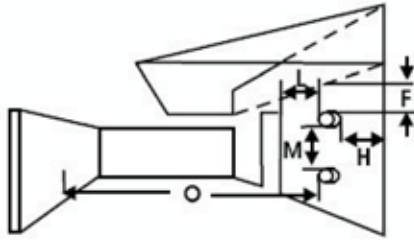
No.	Evacuation type	Evacuation pipes – minimum and maximum length (m)		Ø (mm)
1	C13	Lmin = 1 m Lmin = 1 m	Lmax = 3 m Lmax = 5 m	Ø 60/ Ø100 -concentrical Ø80 / Ø80 - dual
2	C33, C33x	Lmin = 1 m Lmin = 1 m	Lmax = 3 m Lmax = 5 m	Ø 60/ Ø100 -concentrical Ø80 / Ø80 - dual
3	C43	Lmin = 1 m	Lmax = 5 m	Ø80 / 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 -concentrical Ø80 / Ø80 - dual

11.2. Minimum distances recommended for the mounting of the co-axial kit



GARAGE, ANNEX, ETC.

LEGEND:



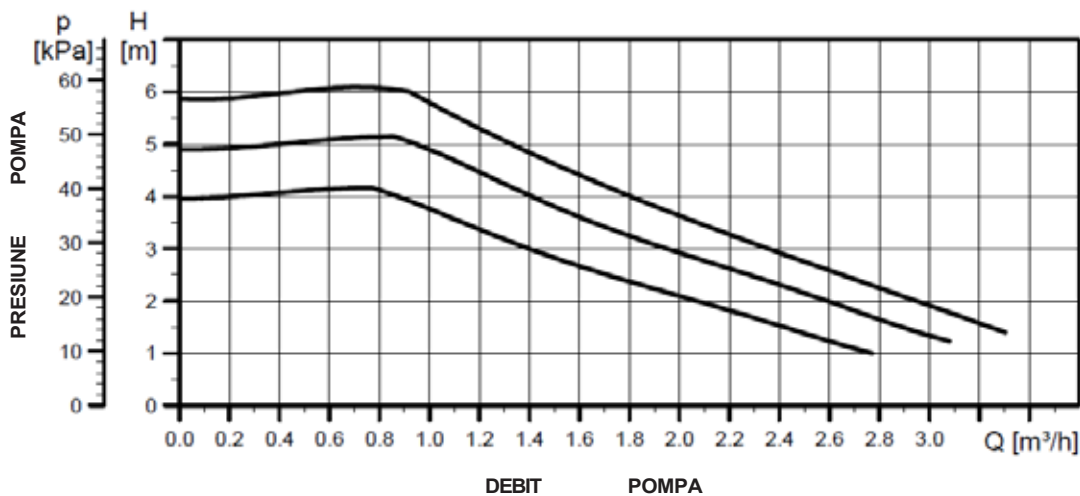
- A – distance under the window/ ventilation hole = 300mm
- B – distance over the window/ ventilation hole = 300mm
- C – distance left/ right to the window/ ventilation hole = 300mm
- D, E – distance from the roof/ gutter = 250mm
- F – distance from the garage roof/ balcony = 250mm

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

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

11.3. Hydraulic characteristic of pump

When designing the thermal installation, the hydraulic characteristics of the pump need to be taken into consideration.



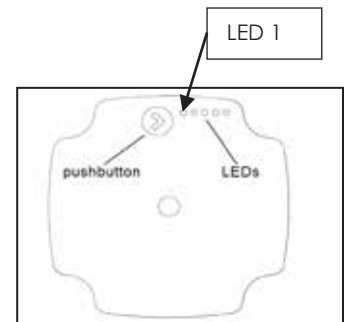
Pump setting:

The pump can be set to function in four modes (4 steps).

Table 6 – Pump functioning modes

UPM3 Flex As [m]	LED 1 red	LED 2 yellow	LED 3 yellow	LED 4 yellow	LED 5 yellow
4	•		•		
5	•		•	•	
6*	•		•	•	•

(*):functioning mode set in the factory.



To set on another curve please contact the authorized service company.

NOTE!



To save on energy and to maintain the possible functioning noises to a low level, please choose a low characteristic curve.

If the pump has detected one or more errors, the bi-colour LED 1 changes from green to red. When an error is active, LEDs indicate the type of error as presented in table 7.

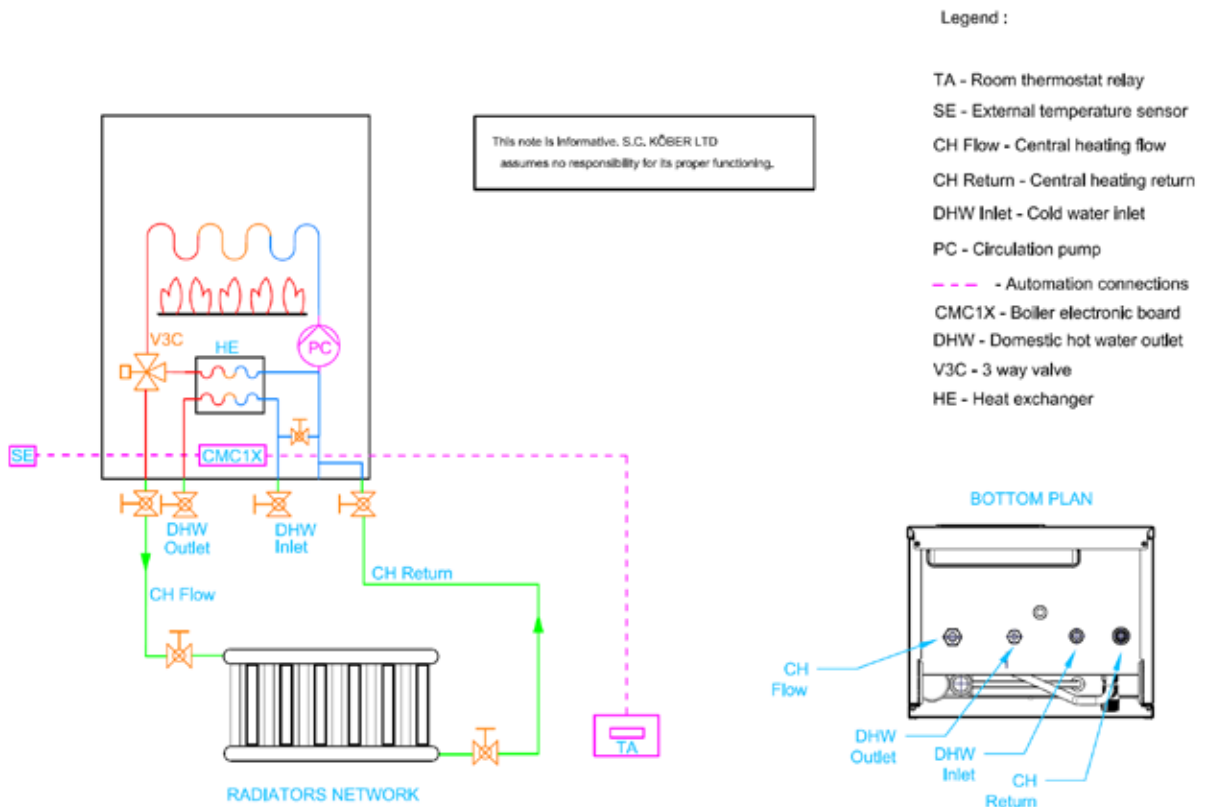
If more alarms are active at the same time, LEDs show the error with the highest priority.

Tab. 7 Pump error codes

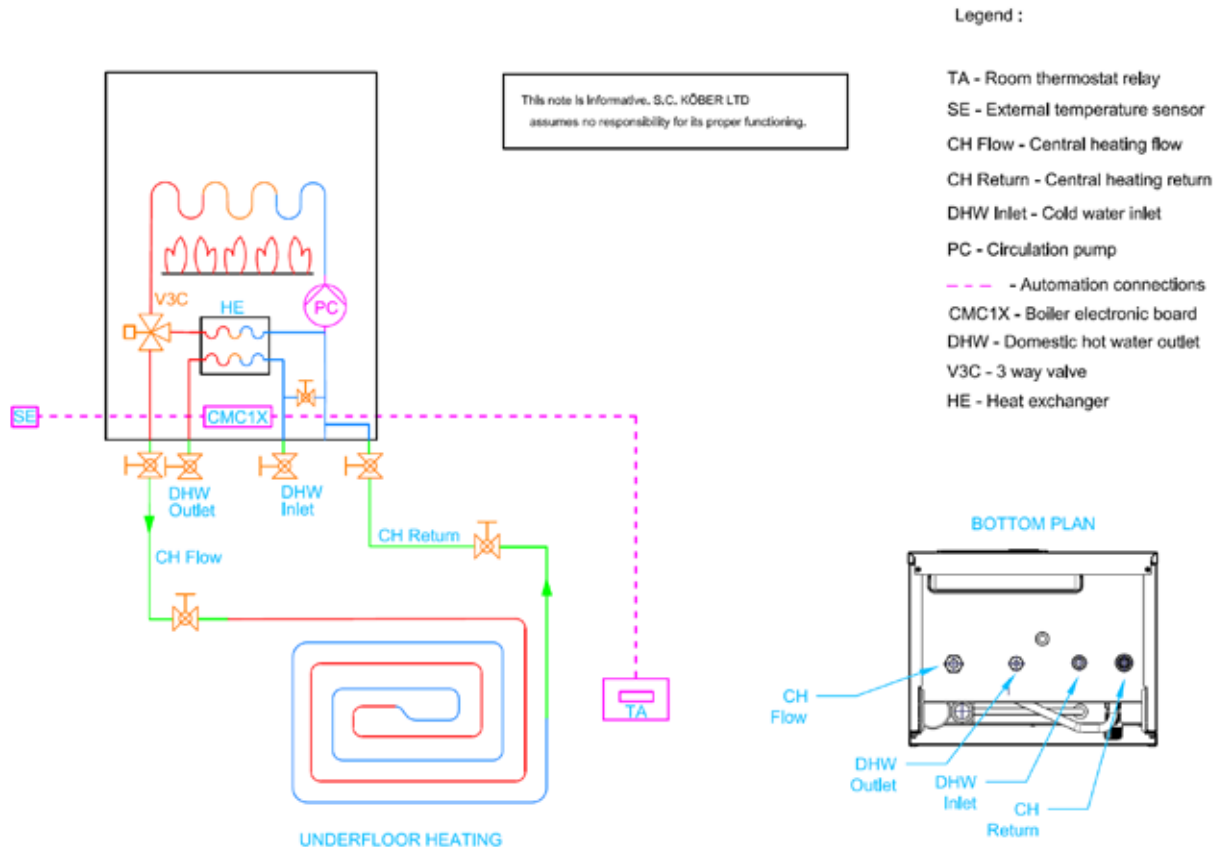
Display	Meaning	Pump action	Repair
1 LED red + 1 LED yellow (LED1 5)	Blocked rotor	Pump tries to restart every 1.5 seconds	Wait or deblock the engine shaft
1 LED red + 1 LED yellow (LED1 4)	Feeding voltage too low	Only warning, the pump functions	Check the feeding voltage
1 LED red + 1 LED yellow (LED1 3)	Electrical error	Pump is stopped because the feeding voltage is too low or feeding is incorrect	Check the feeding voltage / replace the pump

11.4. Functioning schemes covered by warranty

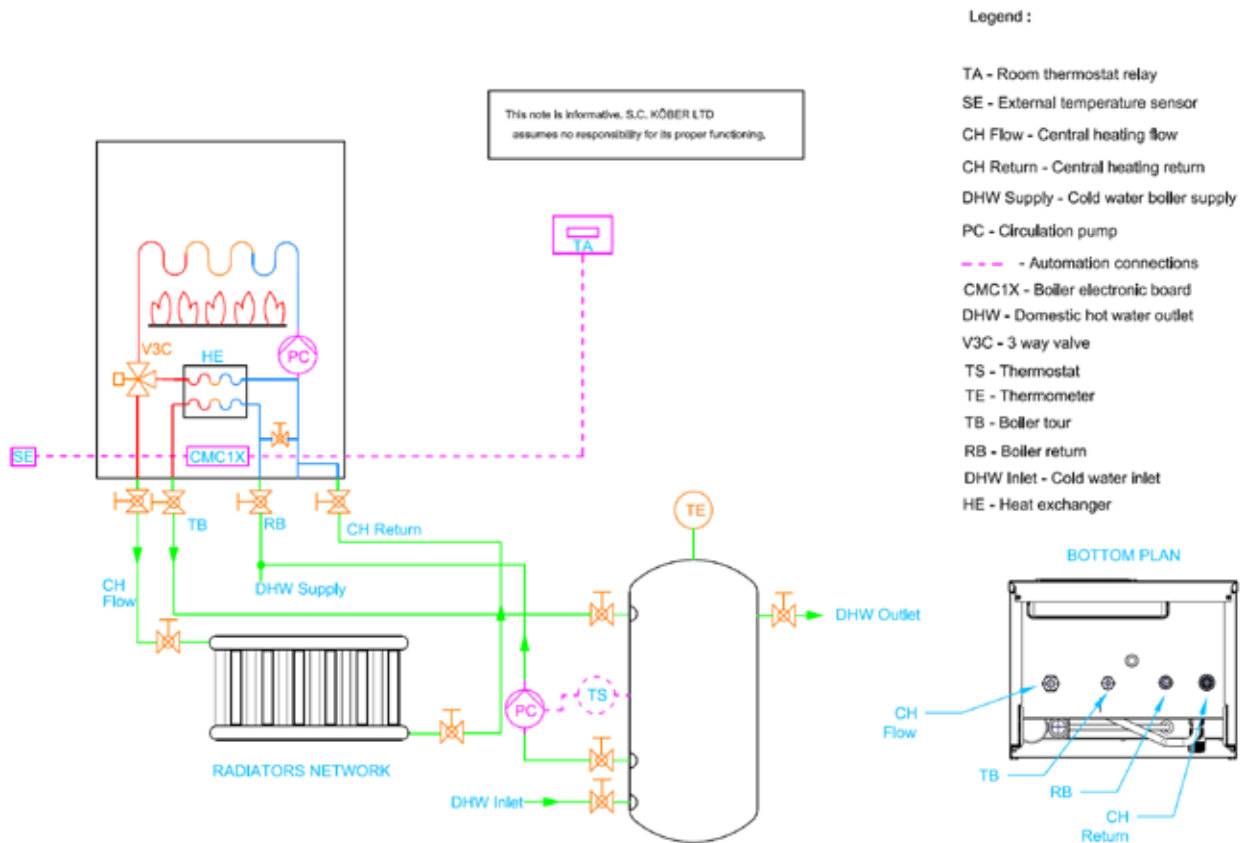
11.4.1 Radiators heating and instant preparation of hot water



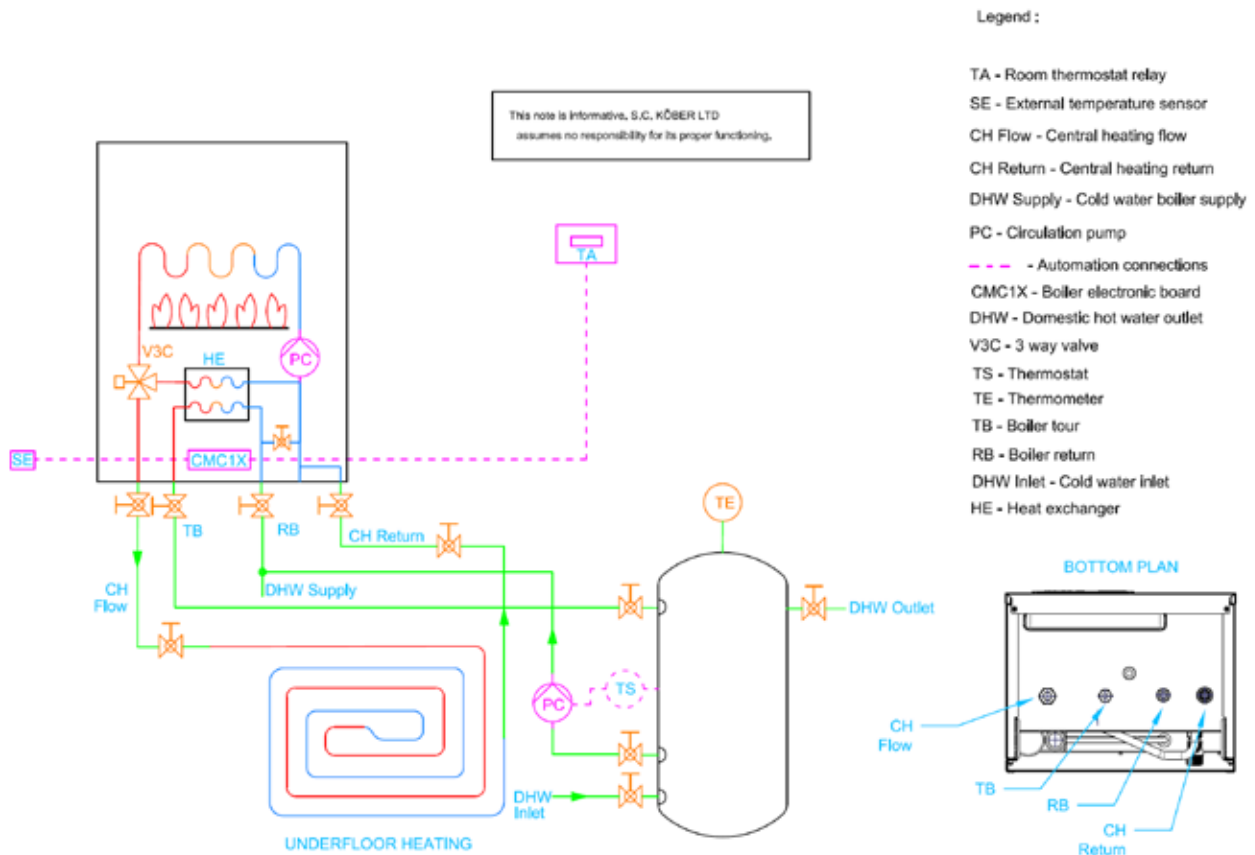
11.4.2 Underfloor heating and instant preparation of hot water,



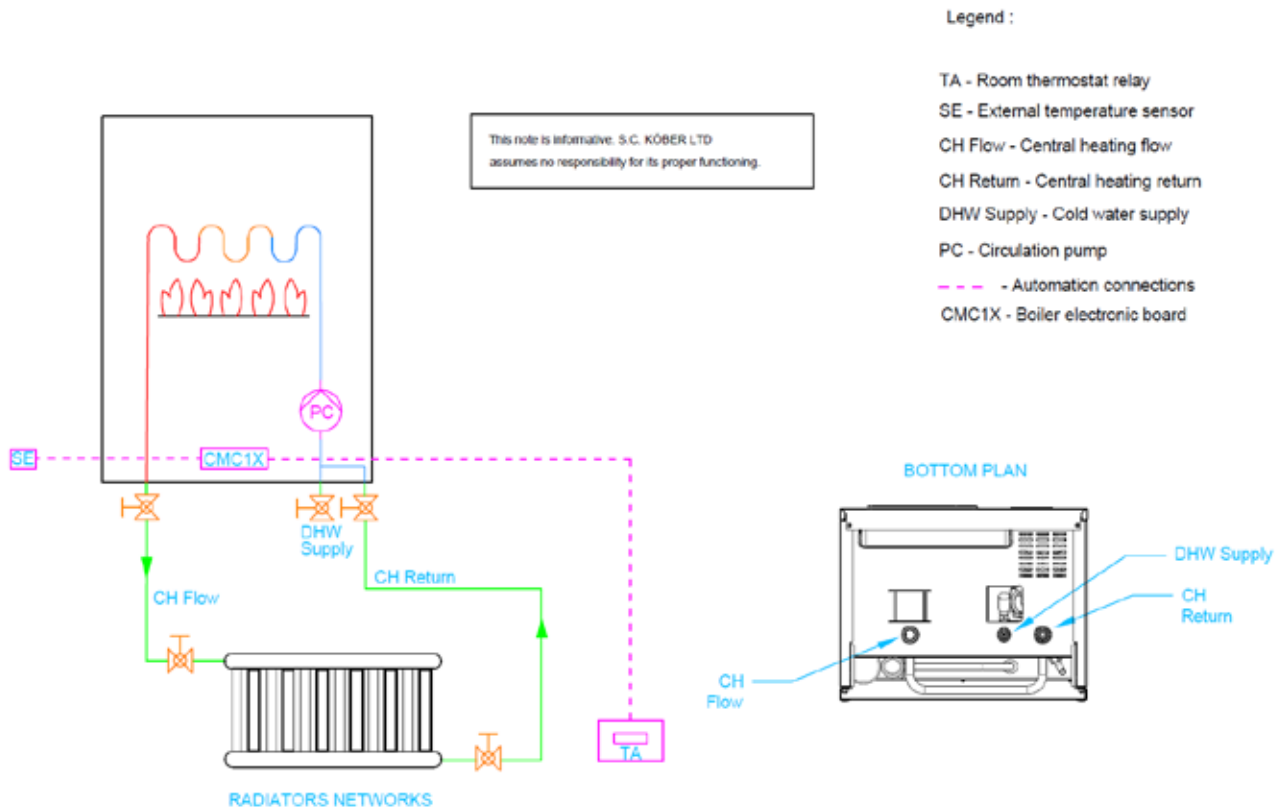
11.4.3 Radiators heating and accumulated preparation of hot water (accumulation water tank)



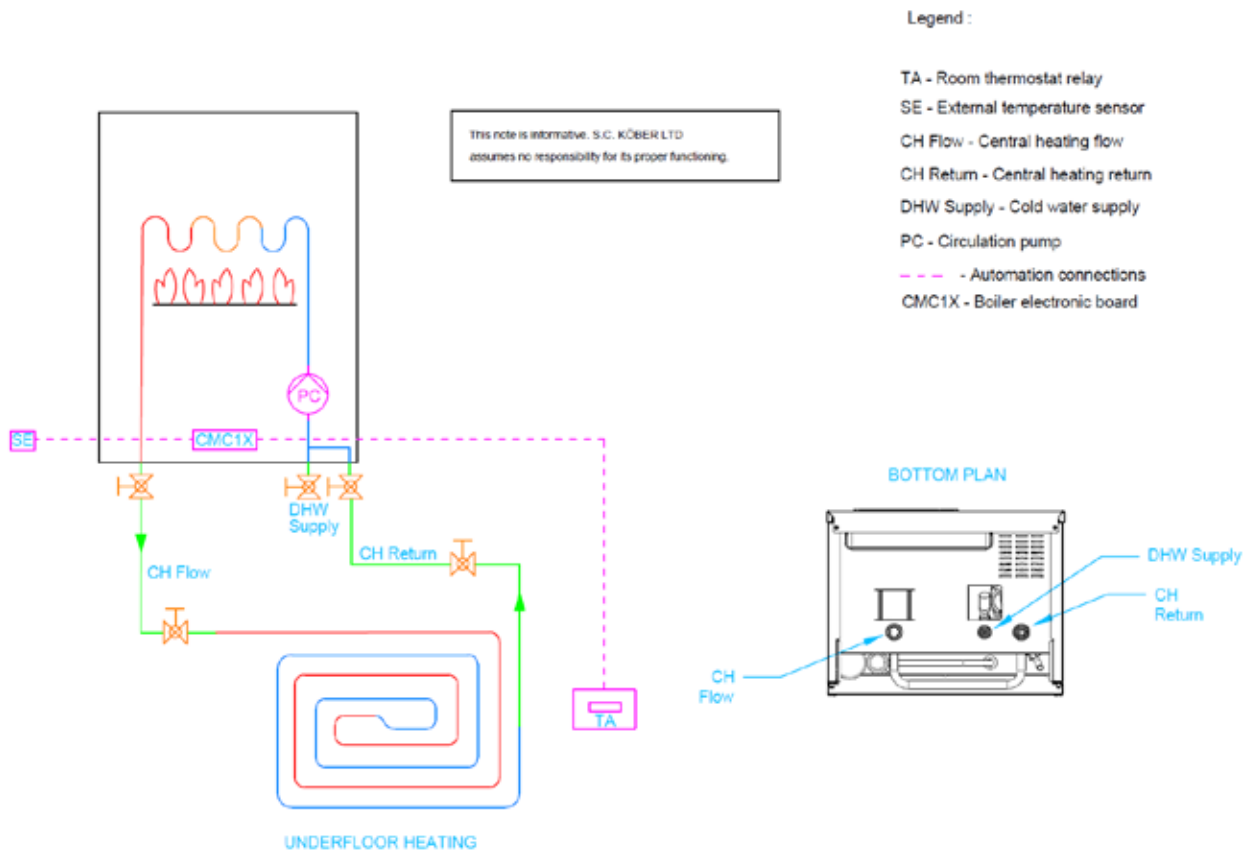
11.4.4 Underfloor heating and accumulated preparation of hot water (accumulation water tank)



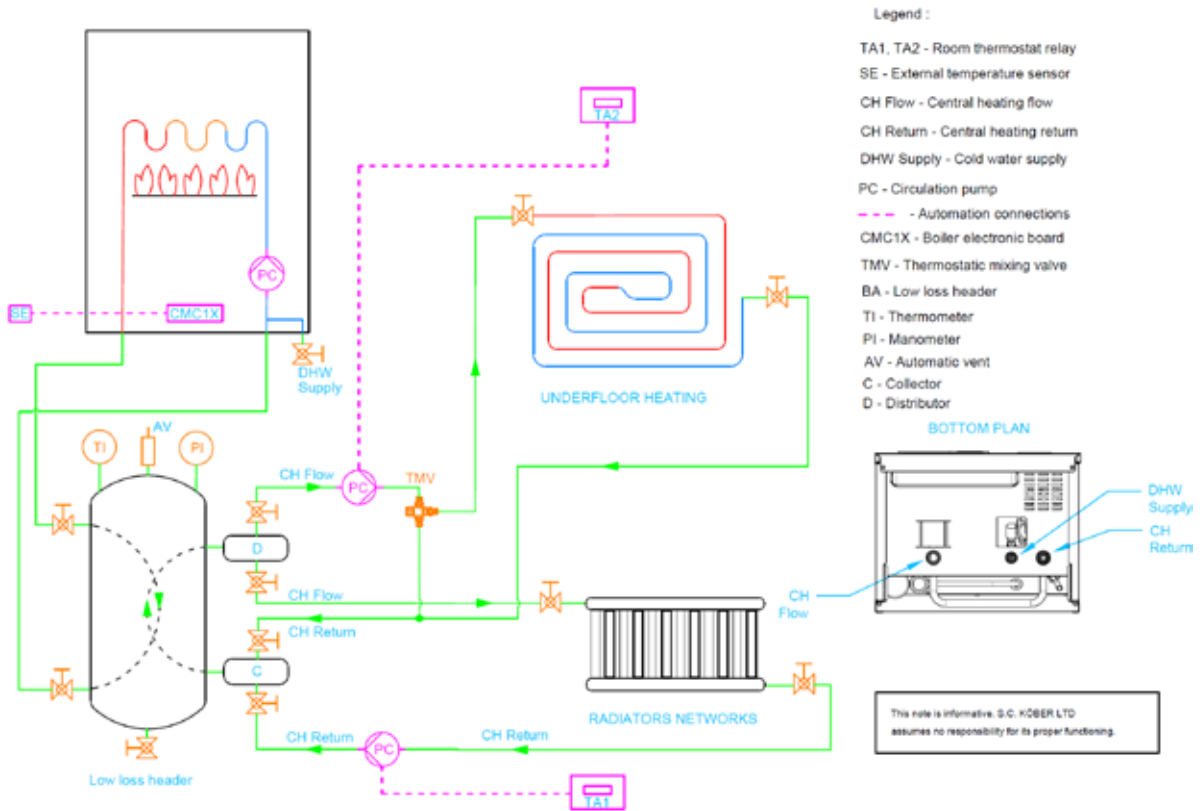
11.4.5 Radiators heating, C38GC35-CH2 boiler (without V3C valve, only with heating circuit preparation)



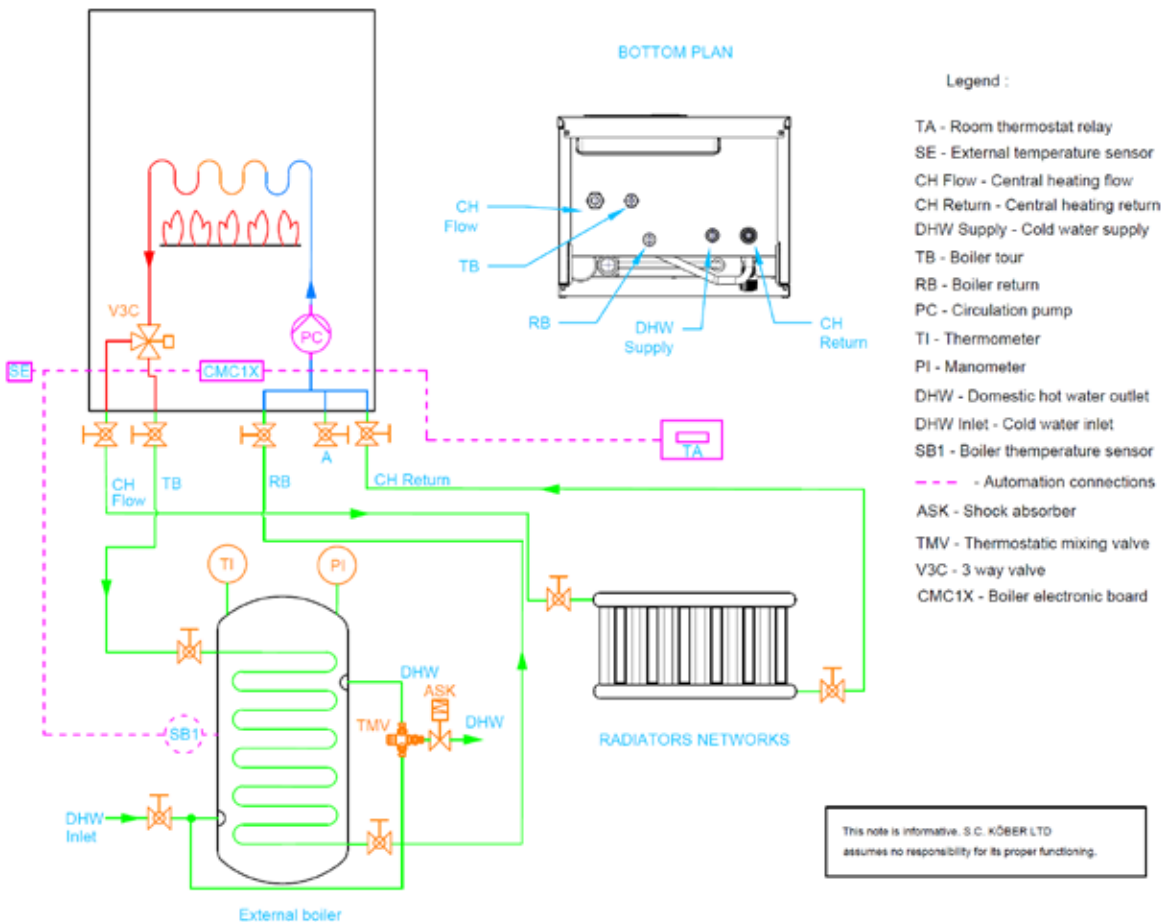
11.4.6 Underfloor heating, C38GC35-CH2 boiler (without V3C valve, only with heating circuit preparation)



11.4.7 Radifors and underfloor heating and external boiler for DHW, C38GC35-CH2 boiler

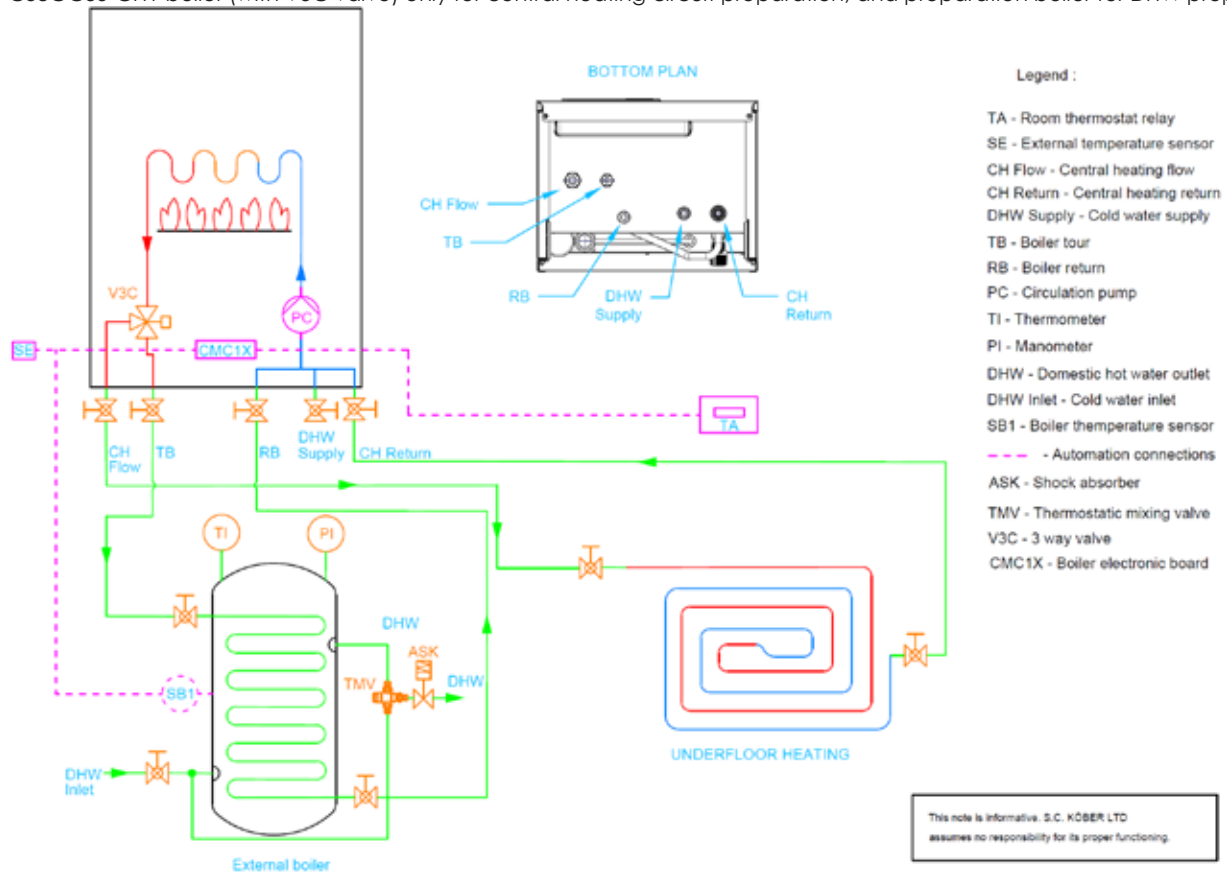


11.4.8 Radifors heating and external boiler for DHW, C38GC35-CH2 boiler



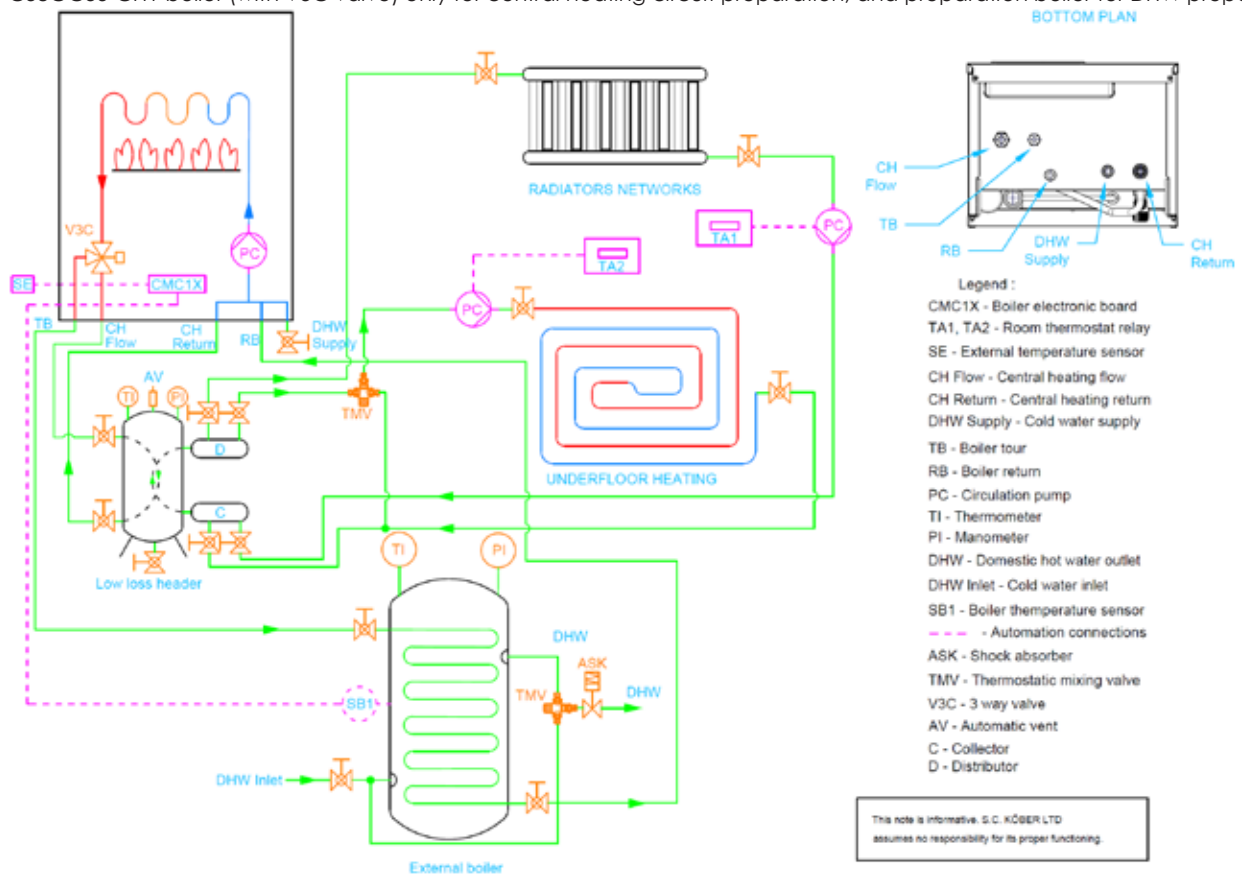
11.4.9 Underfloor heating and external boiler for DHW, C38GC35-CH1 boiler

C38GC35-CH1 boiler (with V3C valve) only for central heating circuit preparation, and preparation boiler for DHW preparation

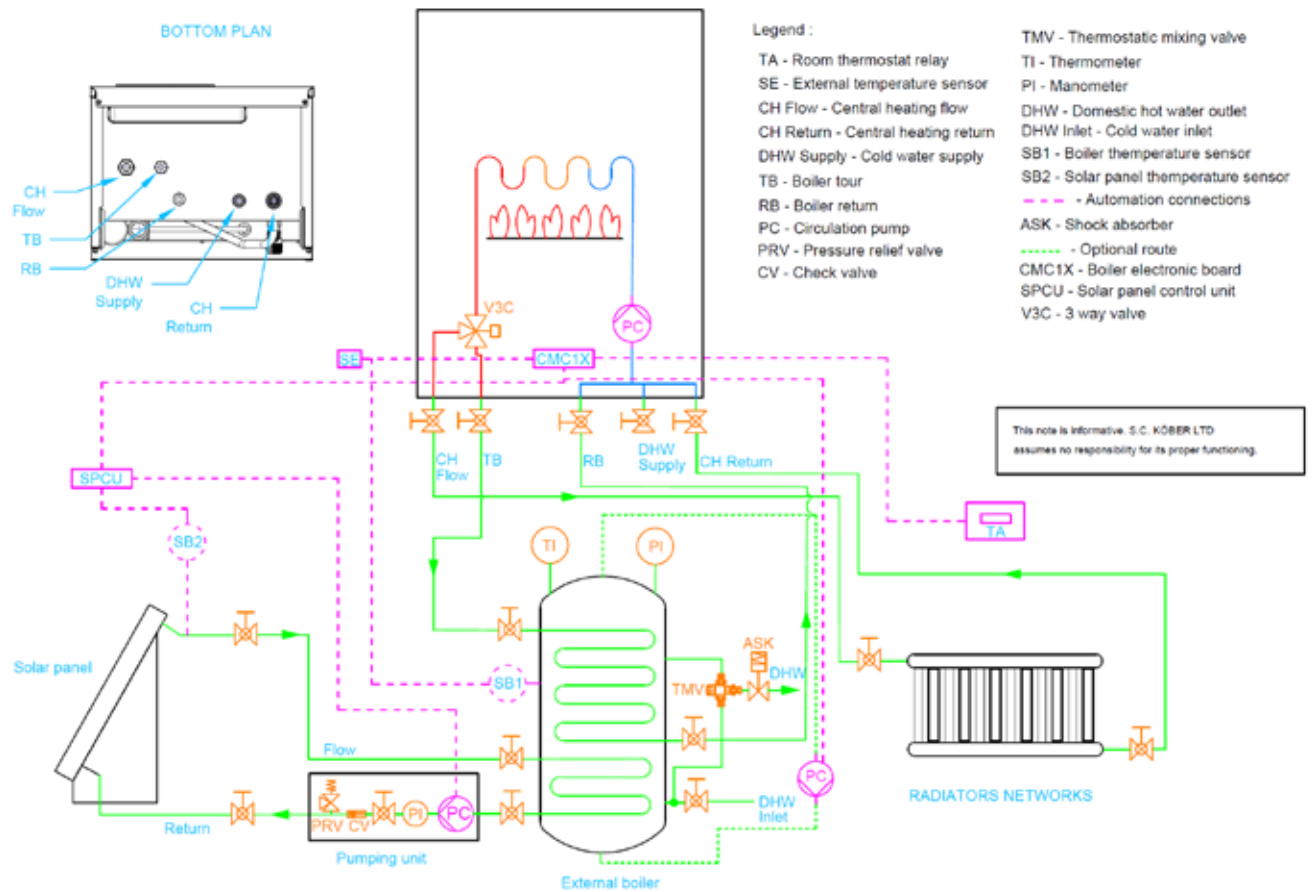


11.4.10 Combine radiators and underfloor heating and external boiler for DHW, C38GC35-CH1 boiler

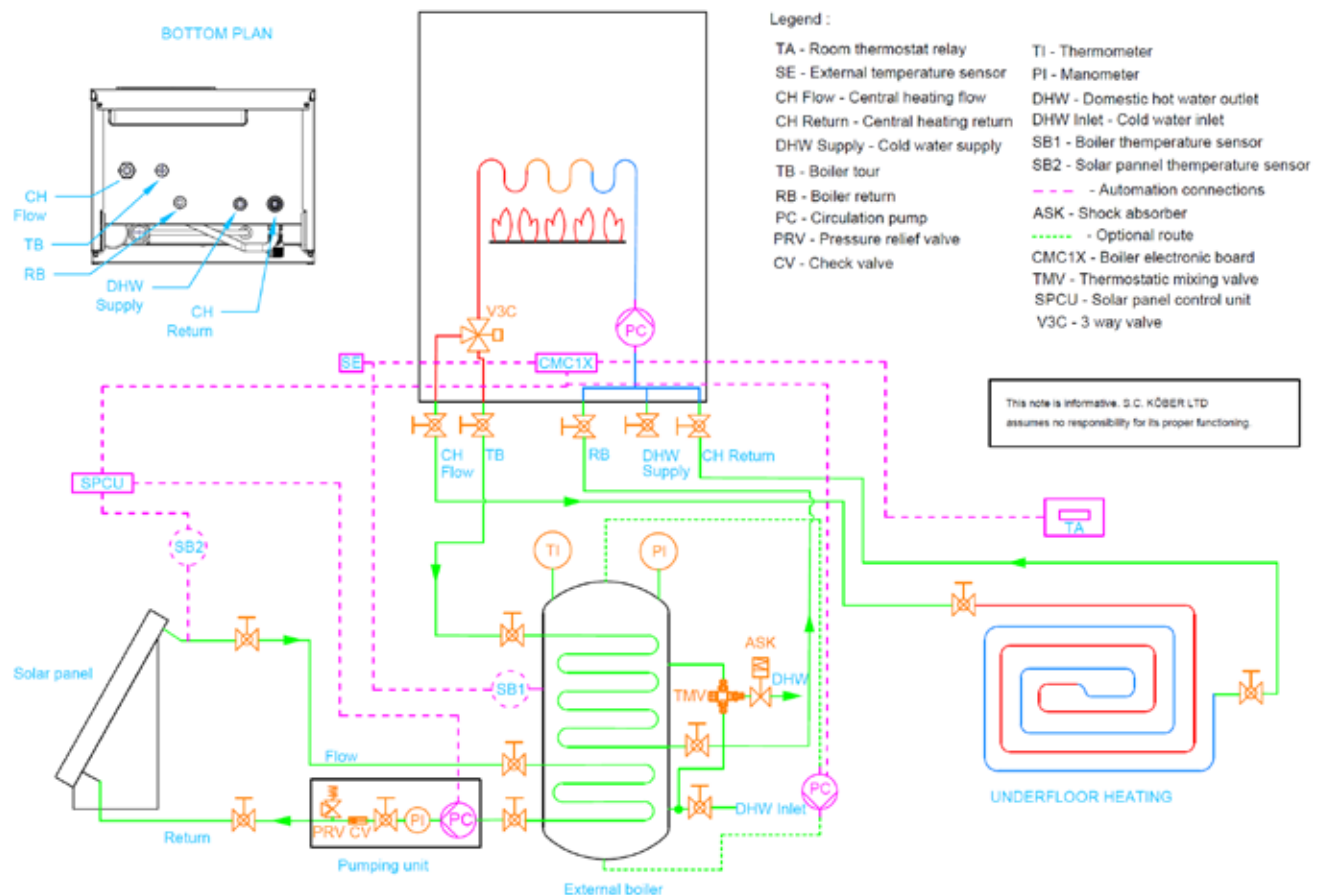
C38GC35-CH1 boiler (with V3C valve) only for central heating circuit preparation, and preparation boiler for DHW preparation



11.4.11 Radiators heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler



11.4.12 Underfloor heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler



11.4.13 Combine radiators and underfloor heating, external boiler for DHW and solar panel, C38GC35-CH1 boiler

