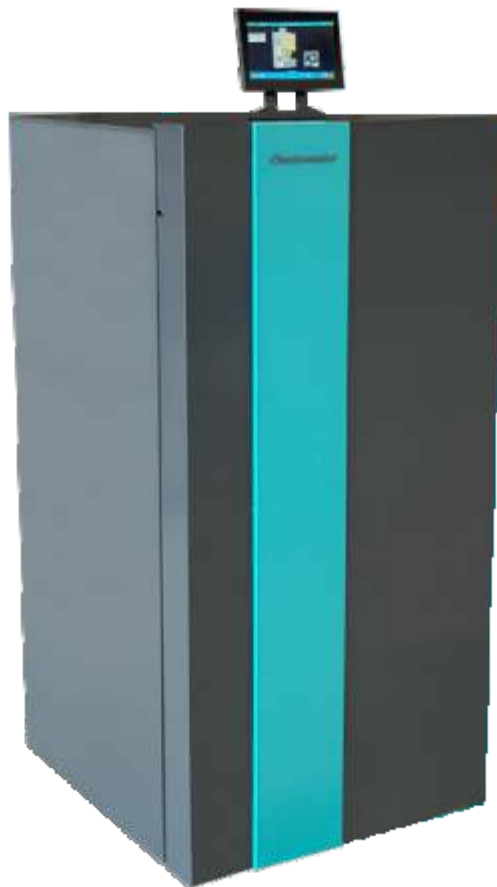


ENG

TECHNICAL INSTRUCTIONS

for installation, use and maintenance
of hot water boiler and installation of
additional equipment



THE FIRST START-UP MUST BE DONE BY AUTHORIZED PERSON,
OTHERWISE PRODUCT WARRANTY IS NOT VALID.

ZVB II 20

Dear customer

Thank you for having chosen one of our products. We would like to remind you that pellet boiler are the most innovative heating solution generated by the most advanced technology, characterised by highquality manufacturing as well as a simple and elegant design. Ideal for any type of room, these products contribute to comfort thanks to the cosy heat that only flames can radiate. These instructions will help you to use your compact boiler properly.

Before using, installing or servicing the product, read the indications contained in this manual carefully. The compact boiler is intended for burning only wood pellets with a diameter of 6 mm. The compact boiler is equipped with a flame guide that increases the efficiency of the furnace.

The compact boiler is also equipped with "schedule" that enable autonomous regulation and the possibility of weekly programming of switching on and off the compact boiler up to 5 times a day. Pellet boilers take the heat to the radiators in the heating system, with a thermal power that is adjusted according to the space to be heated: just set the heating system water temperature manually. Recommended temperature: between 70° and 80°. Pellet boilers have been equipped with highly advanced automatic devices and control and safety systems that ensure efficient and practical operation. Installation and maintenance should be carried out by qualified persons, in accordance with the applicable regulations and in accordance with the instructions provided by the manufacturer. These instructions are part of the product. Before using, installing or servicing, carefully read all indications in these instructions. This pellet boiler should only be used for the intended use it has been designed for. Therefore, the user shall be responsible for any damage to people, animals or things resulting from misuse of the product.

The use of inadequate fuel can lead to damage to parts and improper operation of the boiler - which may result in the non-recognition of the product warranty in the event of a complaint. Use wood pellets with a diameter of 6 mm, a length of 30 mm and a maximum moisture content of 6 %. Keep the pellets away from heat sources and not in humid environments or with explosive atmosphere. It is recommended that you use pellets with the EN PLUS A1 quality mark.



WARNING!

The first two or three times your pellet boiler is started, fumes emitted by the varnish may cause unpleasant smells due to hardening. Therefore, it is advisable to air the room properly, and avoid staying long in front of the pellet boiler.

Installation should be carried out by qualified personnel, who will be fully responsible for installing the product and ensuring its proper operation. The Manufacturer shall not be responsible in case of installation by unqualified personnel or without complying with the general warnings and installation instructions.

After unpacking the unit, check all the parts are in good conditions and that no item is missing. Otherwise, contact the dealer from which you purchased your pellet boiler. Before installation, it's better doing an accurate wash of all the system pipes in order to remove any residues that could compromise the correct working of the boiler.

If you do not use the boiler for a long time it's recommended to carry out the following operations:

- unplug the power supply;
- close the water taps of both the heating system and the sanitary system;
- if there is a risk of frost, empty the heating and sanitary system.

For safety reasons, it is advisable to remember that:

The pellet boiler should not be used by children or handicapped people not being assisted.

Do not touch the pellet boiler with wet parts of the body and/or bare feet.

It is forbidden to modify the safety or adjustment devices without the manufacture's authorisation or indication.

Do not pull, disconnect or twist the electric cables coming out of the boiler even when it is disconnected from the mains.

Avoid covering or reducing the combustion air duct, which is essential for correct combustion.

Keep all the packing elements out of the reach of children or handicapped people not being assisted.

In the event of a fire, disconnect the power supply, use an extinguisher and call the fire fighters if necessary. After that contact the Authorised Assistance Centre.

STATUS OF DELIVERY

Equipment is delivered seperately:

Boiler ZVB II (covered with casing with thermal insulation) on wood pallet with inbuilt and pre-wired:

- color touch screen display (7") of boiler control unit (supplied in the boiler ash box)
- NTC 5K - PVC l=2000 (26226) - Boiler temperature sensor
- PT 1000 - Teflon l=1700 (62330) - Flue gas temperature sensor

Additional parts and sensors in basic delivery:(supplied in the boiler ash box):

- 1x NTC 5K - PVC l=1000 (12041) - DHW temperature sensor (heating circuit K1/K2)
- 1x NTC 5K - PVC l=2000 (32685) - A set of heating circuit temperature sensors K1/Return flow
- 2x NTC 5K - PVC l=2000 (26226) - Temperature sensor - accumulation (buffer) tank
- NTC 5K (31428) - Outdoor temperature sensor
- Connection cable 230 V, l=2500 mm (25830)
- Fuse 5x20 mm - 3,15 A (25836)
- Fuse 5x20 mm - 6,3 A (16124)
- Handle for cleaning the turbulator

ADDITIONAL EQUIPMENT

**CM2K module
for regulation
2+ heating
circuits**



**Room corrector
(CSK)**



**Room corrector
(CSK-Touch)**



**CMSR-100
(Pellet level sensor)**



**Screw refill
(CPSP-BP 800 -
System for the pellet
supply by the screw
transporter from 800
lit. pellet tank)
(additional equipment
CMSR-100 is mandatory
in addition to the screw refill)**

Operating environment

This instruction booklet is an integral part of the product: make sure that it always accompanies the appliance, even in case of transfer to another owner or in the case of transfer to another place. In the event of damage or loss, request a copy from the area technician. Prior to first ignition must receive adequate instructions from the installer.

The following symbols represent specific markings in this technical instructions:



Attention:

This warning sign indicates that the message to which it refers should be carefully read and understood, because failure to comply with what these notices say can cause serious damage to the Boiler and put the user's safety at risk.

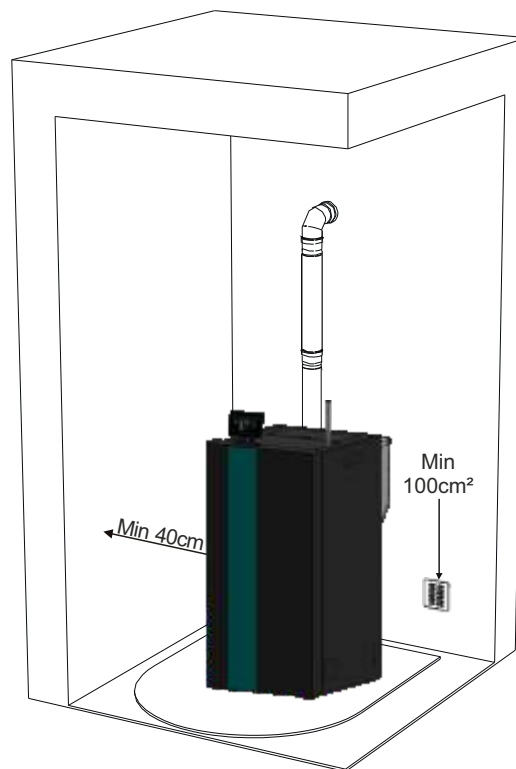


Information:

This symbol is used to highlight information which is important for proper boiler operation. Failure to comply with these provision will compromise use of the boiler and its operation will not be satisfactory.

OPERATING ENVIRONMENT

For proper combustion and good temperature distribution, the boiler must be placed in a ventilated area. The boiler must be placed in a place with fresh air supply for good pellet combustion. The room must not be smaller than 30 m³. The air must enter through fixed openings in the walls (near the boiler) which are on the outside with a minimum cross-section of 100 cm². These openings must be made that they cannot be blocked in any way. Air can also be supplied from an adjacent room, provided that the adjacent room is equipped with external air supply and is not used as a room or bathroom, where there is no risk of fire, such as: garages, storerooms, warehouses with flammable material, observing strictly in accordance with the current rules.



Two boilers, a fireplace and a boiler, a boiler and a wood-burning kitchen stove, etc., should never be used in the same room because the draft of air from one device could interfere with the draft of air from another device. It is forbidden to install the compact boiler in a room with an explosive atmosphere. The floor of the room must be adapted so that it can bear the weight of the stove itself. In the case of combustible walls, keep a back distance of at least 10 cm, a side distance of at least 40 cm and a front distance of 150 cm. If there are curtains and furniture in the room, take additional precautions. The two sides must be far enough away from the wall that an authorized technical person can access them in case of maintenance.

Flue pipes

The flue pipe must have internal dimensions not larger than 20x20 cm, or diameter 20 cm. In the event of larger dimensions, or of the flue pipe being in poor condition (for example cracks, poor insulation, etc.), it is advisable to fit a stainless steel pipe of suitable diameter inside the flue pipe throughout its length, right up to the top. Check with suitable instruments that there is a draught between 6 Pa and 10 Pa. This type of connection ensures the evacuation of the fumes even in the event of a temporary power cut (the fan does not work).

The smoke exhaust system must be intended for one stove only (the chimney must not be combined with other stoves).

The exhaust of smoke takes place through a pipe 8 cm in diameter at the back of the stove. A T-piece with a cover that can collect condensation must be be installed. The cover of the T-piece must be removable for cleaning and draining condensate. The smoke outlet from the furnace must be connected to the outside environment via a steel or black pipe without obstacles (the pipe must withstand temperatures up to 450°C). Pipes must be hermetically sealed. In order to hermetically close (seal) the pipes, it is necessary to use materials that can withstand up to 300°C (silicone for high temperatures). Horizontal parts can be up to 2 m long, and it is possible to have up to 3 changes of direction of 90°. If the flue pipe is not connected to the chimney, it must be placed vertically and have a minimum length of 1.5 m. It must also be properly sealed and secured and must have built-in wind protection (Figure 1a). The vertical channel can be inside or outside the room. If it is located outside the room, then it must be isolated (Figure 1b). If an *insert* is placed in the chimney, it must be certified for solid fuel, and if the diameter is greater than 150 mm, the pipe and the seal of the flue pipe and masonry parts of the formwork must be inserted. At the bottom of the flue pipe, provide an inspection cap to allow periodic checking and cleaning, which must be done annually. Make a gas-tight connection to the flue pipe, using pipes and connectors as recommended by us. You must ensure that a windproof cowl should be fitted which complies with the standards in force.

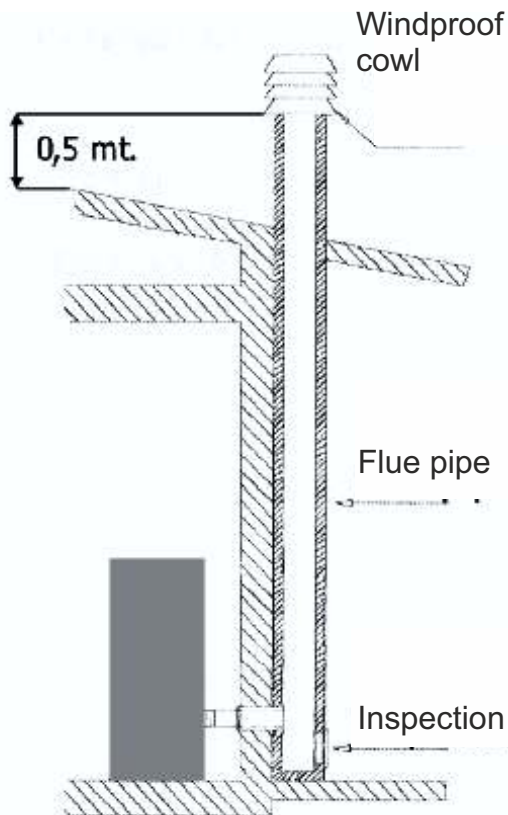
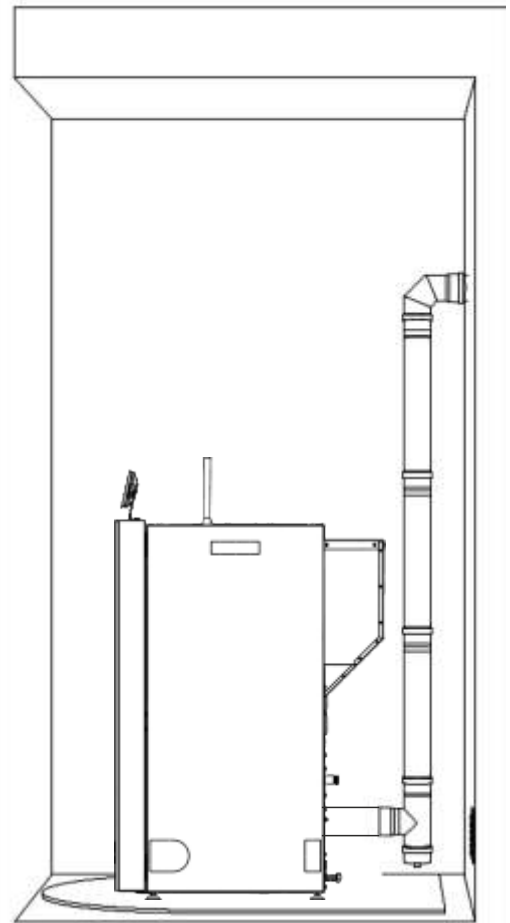


Figure 1a.

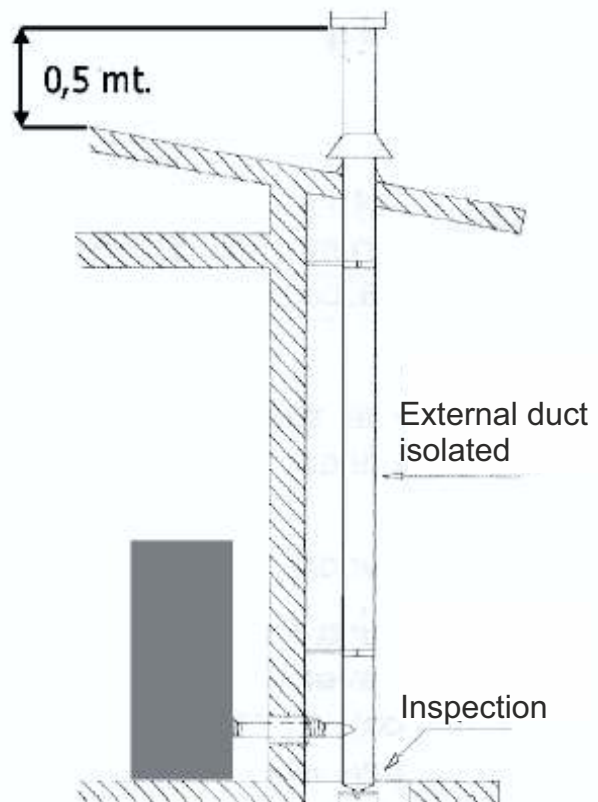
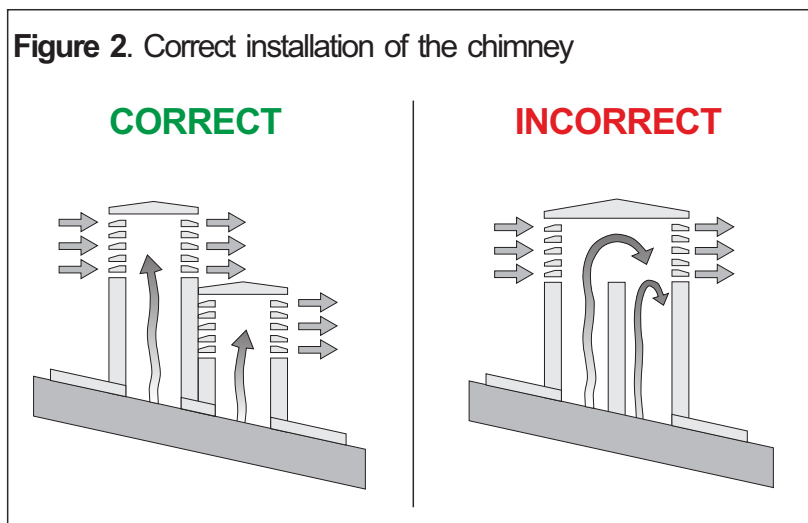


Figure 1b.

Chimney top:

The top of the chimney must have the following conditions:

- It must have the same diameter and internal shape of the chimney.
- It must have a useful outlet diameter not less than twice the diameter of the flue pipe.
- The top of the chimney on the roof must be lined with bricks and/or tiles, and must always be well insulated.
- It must be built to protect against rain, snow and other things that could fall into the chimney and that the smoke exit is not obstructed by the wind.
- The top of the chimney must be positioned in such a way as to guarantee the unhindered passage of smoke, and it must be located away from rain drainage systems. In the case of several chimneys of different heights, they must be separated as shown in Figure 2.
- The top of the chimney must be wind resistant.
- Possible buildings or other obstacles that are higher than the top of the chimney must not be too close to the chimney.



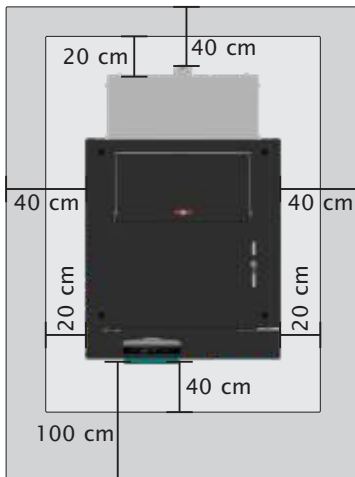
Before deciding where to place the stove, keep this in mind:

- That the air used for combustion must not come from a room in which there is no ventilation or fresh air supply, but the air must come from a space that is exposed to fresh air or from outside.
- The stove must not be installed in the bedroom.
- Connection to electricity is mandatory (if the stove cable is not long enough, use an extension cable).

Safety distances from the boiler (figure 3):

The stove must be installed in such a way that the following safety conditions are observed:

- The minimum distance to the side and behind must be 20 cm from non-combustible materials.
- The minimum distance from the sides and from the back must be 40 cm from moderately inflammable materials.
- Easily flammable materials must not be placed less than 100 cm in front of the stove.
- If the stove is installed on a combustible floor, the stove must be placed on a plate made of heat-insulating material that extends 20 cm from the sides and 40 cm from the front.
- Do not place objects made of flammable materials or objects that can endanger the operation of the stove closer than the safety distances.
- In addition, it is desirable to keep all elements of flammable and easily flammable materials outside the radiation area of the furnace, such as beams, wooden furniture, curtains of flammable liquids, etc. at least 1 meter from the radiation area.
- In case of contact with wooden walls, it is necessary to insulate the flue pipe with ceramic fibers or similar materials with the same characteristics.



Positioning

The stove is equipped with an electric cable for connecting to a 230V, 50 Hz socket, preferably with a thermal-magnetic switch. Variations in voltage greater than 10% can endanger the operation of the furnace (if not already present, a suitable differential switch must be provided).

The electrical system must comply with the standards;

The electrical cable must be of the appropriate diameter for the power of the device.

The stove must be completely on the floor. Check how much weight the floor can handle.

Figure 3. Minimum distance from the object



In case you have a wooden floor, install the protective surface of the floor in accordance with the rules and regulations in force in your country.

Outside air supply

The compact boiler must always be equipped with an air supply to enable normal combustion in the combustion chamber.

- Be sure that the room where the boiler is located is sufficiently ventilated, i.e. that it has good ventilation, and if necessary, install an opening for fresh air from the outside with a minimum diameter of 100 cm² (diameter 12 cm or square 10 x 10 cm).
- The air supply can also be connected to another room in order to ensure the constant presence of air.
- The presence of other devices located near the boiler must not create a lower pressure than the external air pressure.
- In adjacent rooms, fixed air vents must be constructed in the manner described above.



It is not necessary to connect the external air supply directly to the boiler, but as mentioned above, 40 m³ / h of air (room) must be provided. See UNI 10683.

Recommendation for connection of flue pipes ZVB II.

Content of the flue set:

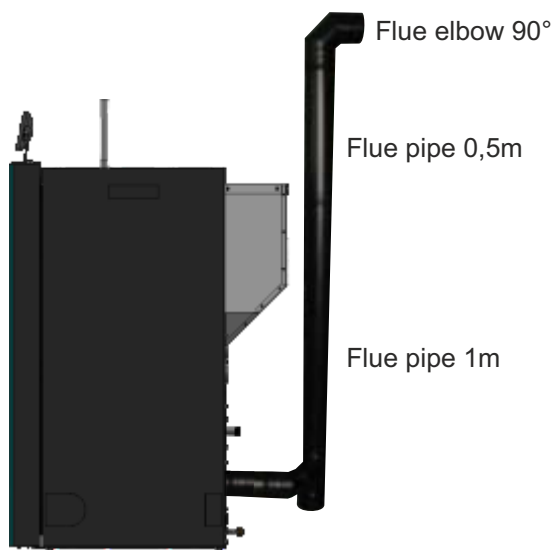
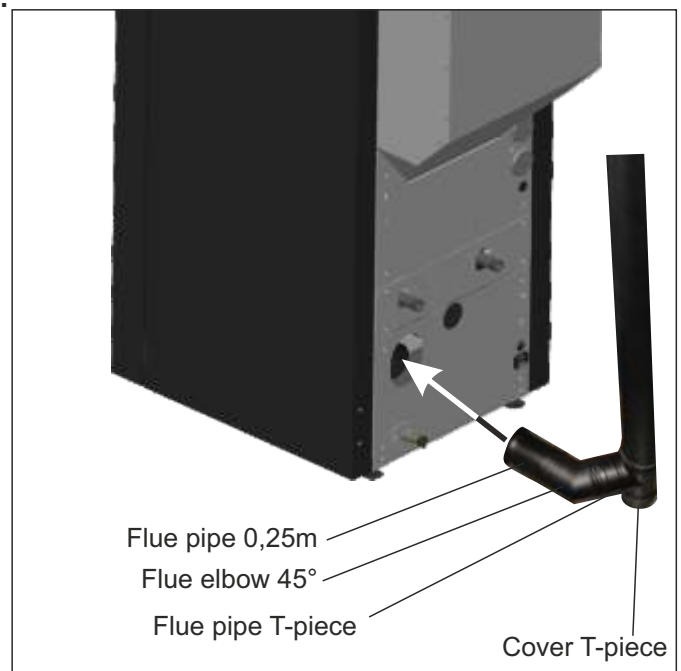


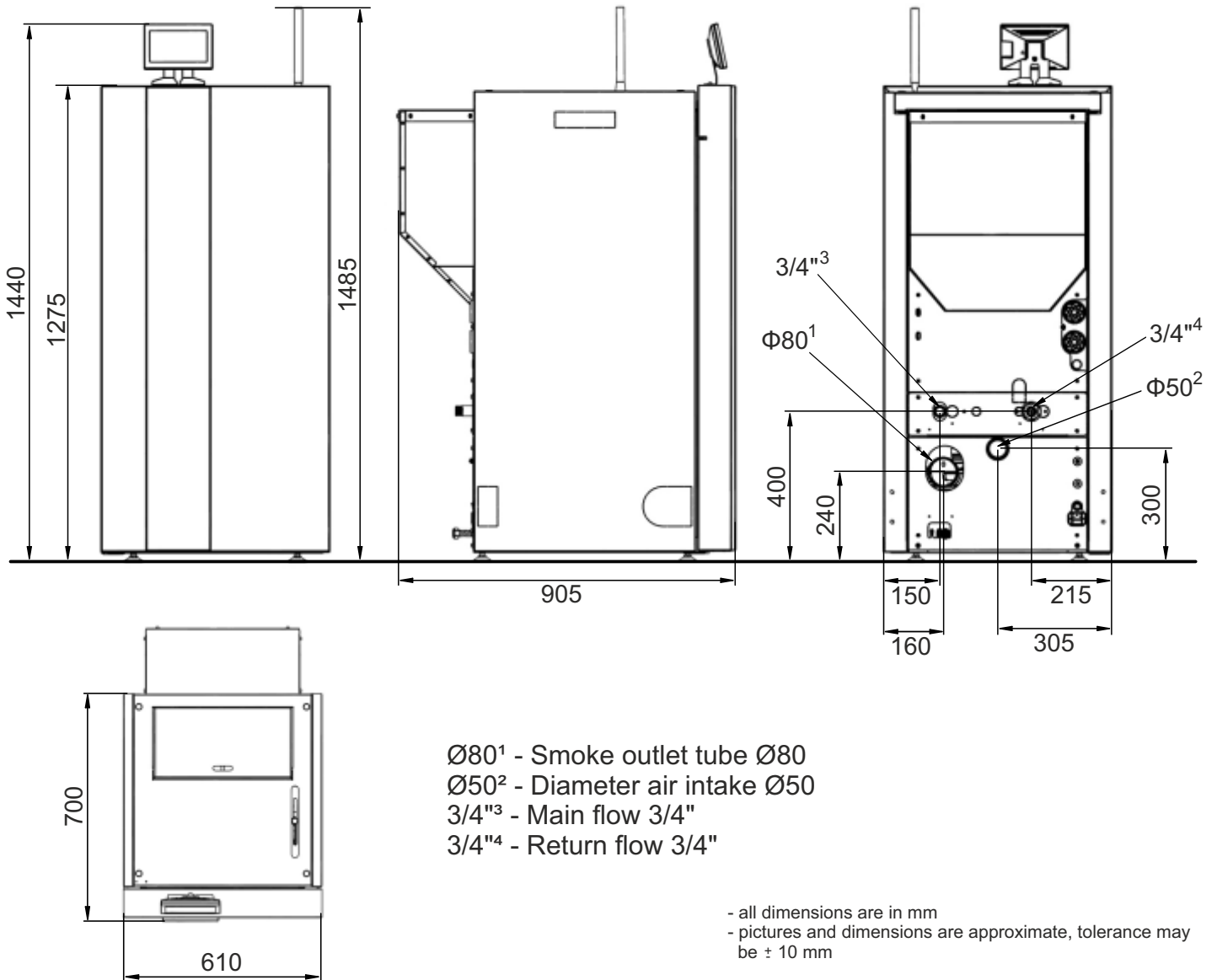
Figure 4. Connection of the boiler with the flue set



With the ZVB II 20, it is necessary to order the flue set Φ 80 for the ZVB II boiler.

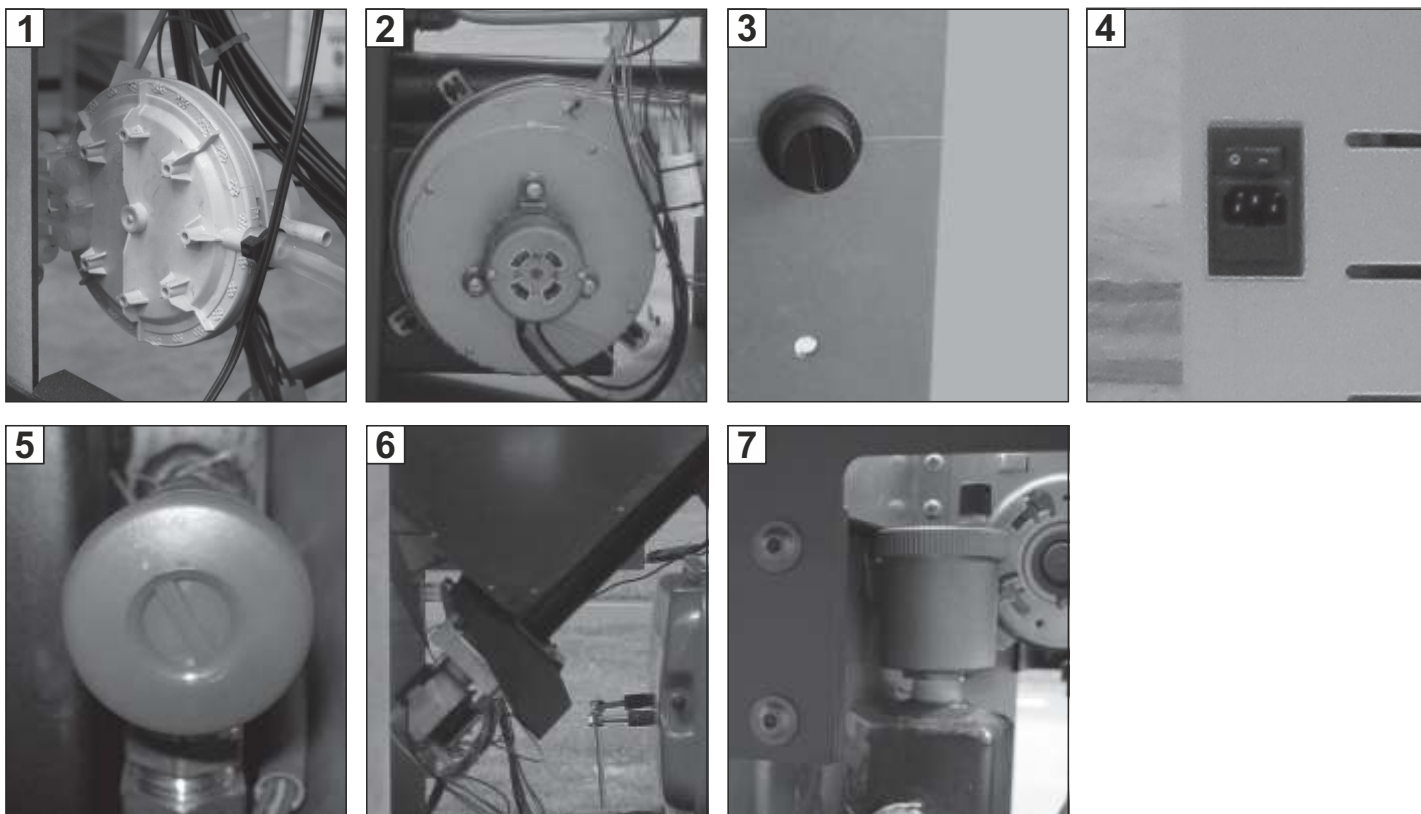
All flue connections are sealed with rubber flue gaskets that are factory-supplied and are located in the gasket grooves on all detachable parts of the flue set.

Technical specification of ZVB II 20



Model		ZVB II 20
Heat input	(kW)	19
Heat input on the water side	(kW)	5,2 - 17,5
Pellet consumption	(kg/h)	1,2 - 3,88
Efficiency	(%)	88,8 - 92,1
Smoke outlet tube	(ø mm)	80
Diameter air intake P	(ø mm)	50
Pellet tank volume	(kg)	65
Boiler water	(l)	50
Autonomy	(h)	54 - 16,5
Electric power supply	(V / Hz)	230/50
Power consumption max	(W)	100-300
Dimensions (width/depth/height)	(mm)	610x905x1485
Expansion vessel	(l)	8
Mass	(kg)	265

SAFETY DEVICES



1. Pressure switch:

It controls the pressure in the smoke duct. It blocks the pellet transporter in case the drain is blocked or there are significant counter pressures, for example in the presence of wind, open combustion chamber door or fume extractor failure.

2. Flue gas temperature sensor:

This sensor is located on the upper part of the fan and if the flue gas temperature is too high, it will stop the operation of the boiler.

3. Safety thermostat:

Safety thermostat with manual reset for the water temperature: if the temperature of the water tank exceeds the preset safety level of 100 °C immediately stops the operation of the boiler and the display will show "SAFETY THERMOSTAT". To restart you need to reset manually.

4. Electrical safety:

The Boiler is protected against violent surges of current (ex. lightnings) by the main fuse which is located on the control panel at the rear of the boiler. Other fuses to protect the electronic boards are to be found on the boards themselves.

5. Safety valve:

This valve acts to prevent over pressurization of the hydraulic system. If the pressure of the boiler or plant exceeds 3 bar it drains the water from the circuit.

6. Reduction motor:

If the motor stops, the boiler continues to function until the flame goes out for lack of fuel, and until it has cooled down to the minimum level.

7. Automatic vent valve:

This valve eliminates the air inside the boiler and of the heating system.

OPERATING THE SYSTEM

If the installation of the boiler provides interaction with another existing system complete with a heater (gas boiler, gas boiler, oil boiler, etc..) consult qualified personnel who can then answer the compliance of the system, as envisaged by the law in force.



The connection of the boiler to the central heating system must be made **ONLY** by specialized personnel who are capable of carrying out installation properly, in compliance with current standards in the country of installation. The manufacturer will not be held responsible for damage to persons or things in the event of failed operation if the aforementioned warning is not complied with. The return flow safety valve must be installed when installing a boiler with an accumulation tank. The return flow safety valve is not included in the delivery of the boiler and must be purchased separately.

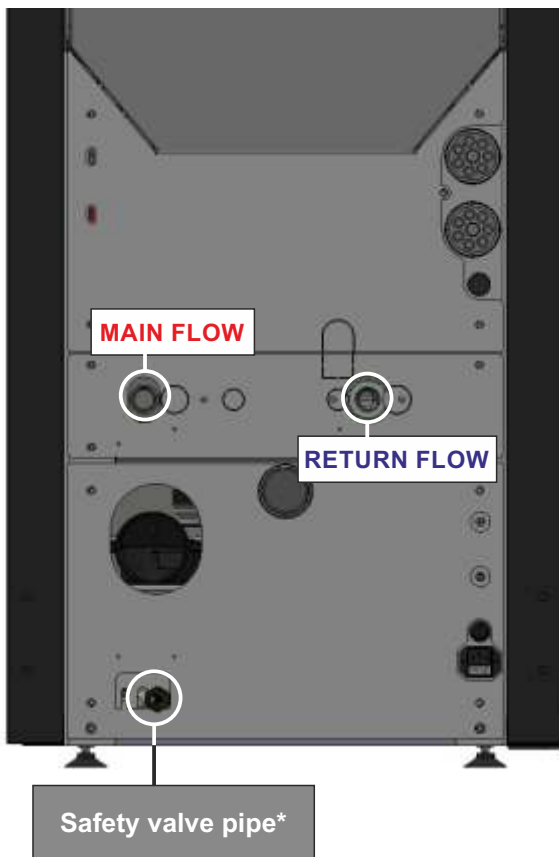
Connection to a closed heating system:

The boiler is factory set for connection to a closed heating system (**closed expansion vessel**).

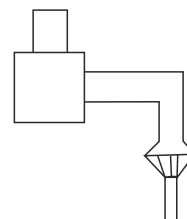
In addition to the closed expansion vessel, the following elements must also be installed according to the standard: (included in the delivery of the boiler).

- Safety valve
- Controller (regulation)
- Temperature sensor
- Pressure sensor
- Alarm
- Automatic operation of the boiler
- Safety thermostat with manual reset
- Circulation pump

Figure 5. Main flow, return flow and safety valve tube



* The safety valve pipe (fig. 5.) must always be connected to a water drain pipe. The tube must be capable of with standing high temperature and pressure.



Flushing the system:

Recommendation:

Before connecting the boiler to the heating system, it is recommended to flush the system to remove impurities and small residual particles during connection and installation.

Connect the boiler to the heating system with removable sealed connections.

When connecting the boiler, make one part between the boiler and the installation with flexible pipes, which will enable easier maintenance and, if necessary, moving the boiler.

Filling the system:

Once all the water connections, proceed to check pressure seal by filling the boiler. During this operation, any air in the system is released from the automatic vent valve.

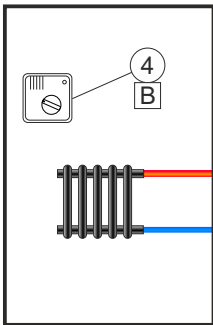
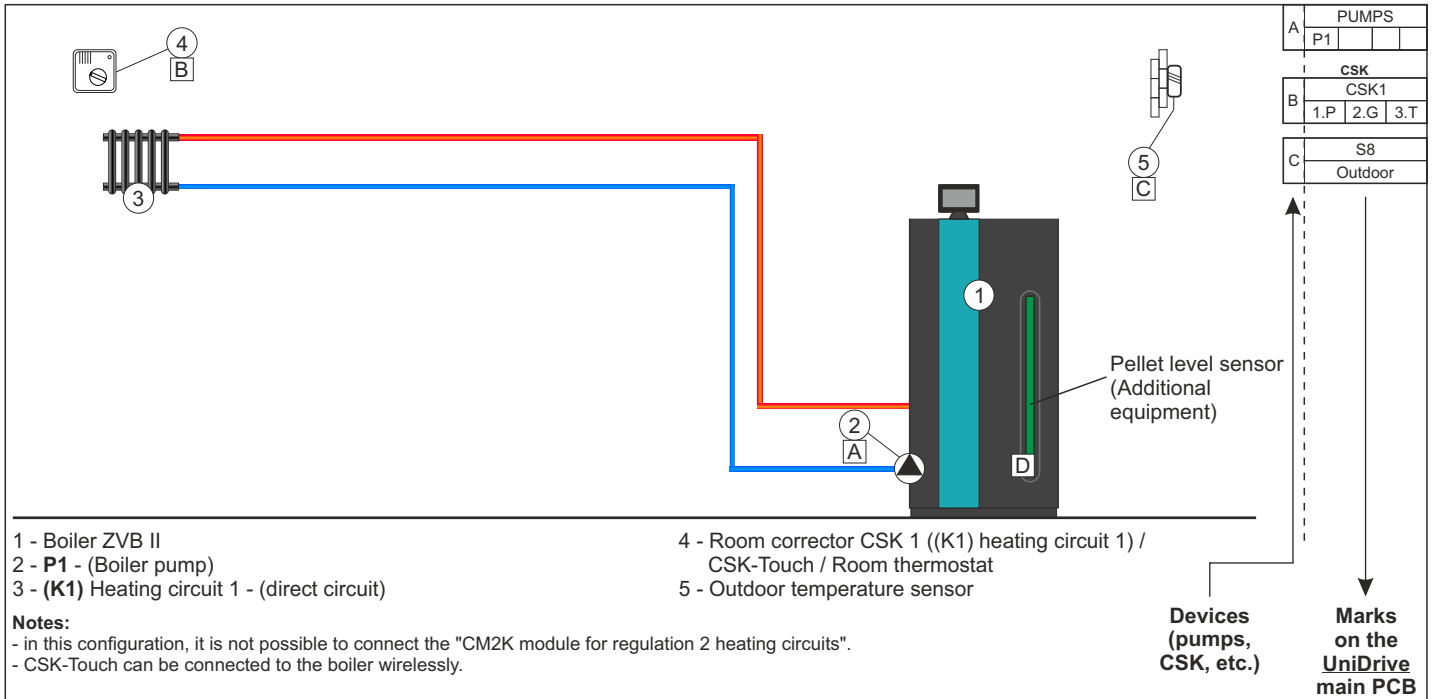
Figure 6. Vent valve



The filling pressure of the system when COLD must be 1 bar. During operation, if the system pressure drops (due to evaporation of dissolved gases in the water) to values lower than the minimum indicated above, the user must use the filling tap to bring the pressure back up to its normal pressure.

For proper operation of the boiler when HOT, the pressure in the boiler must be between 1,5 and 1,8 bar.

EXAMPLE OF SENSORS AND PUMPS CONNECTIONS (CONFIGURATION 1)



CSK		
CSK1		
B	1.P	2.G 3.T

Example of the position of CSK on the main PCB UniDrive.

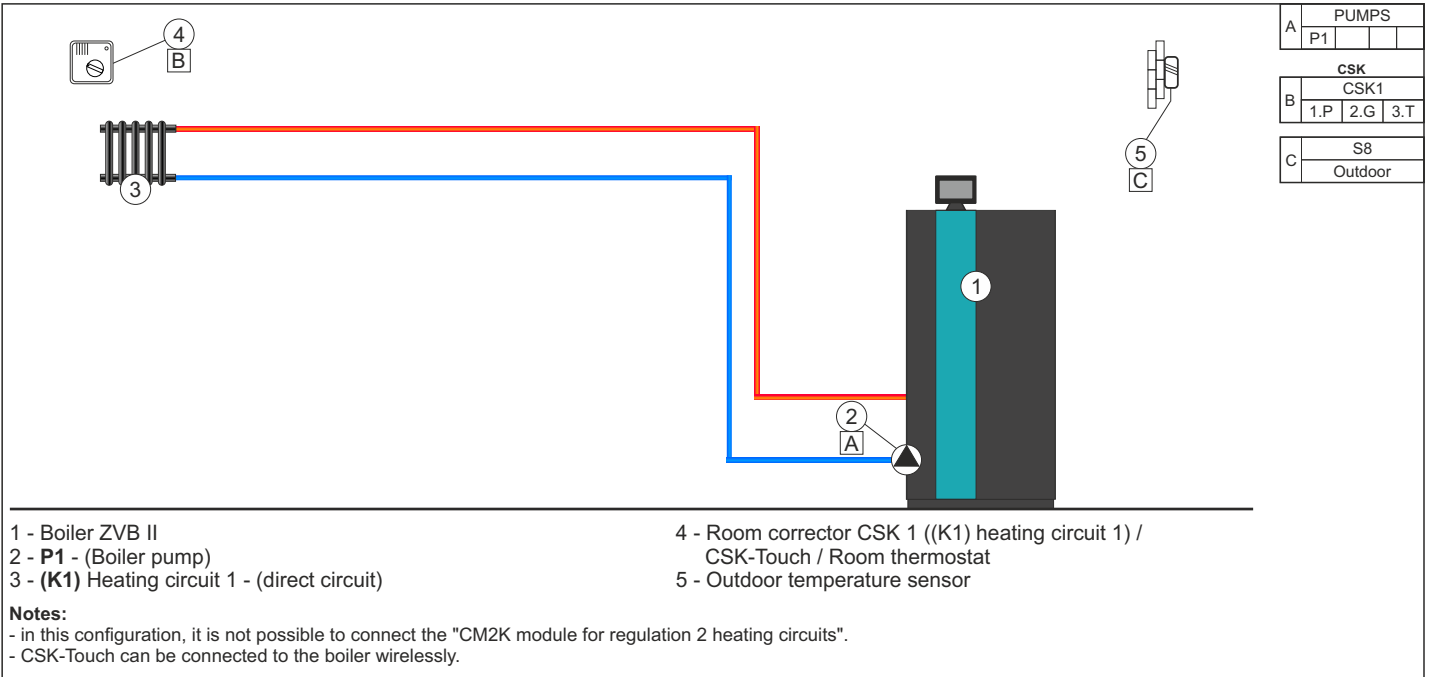


Main PCB: UniDrive

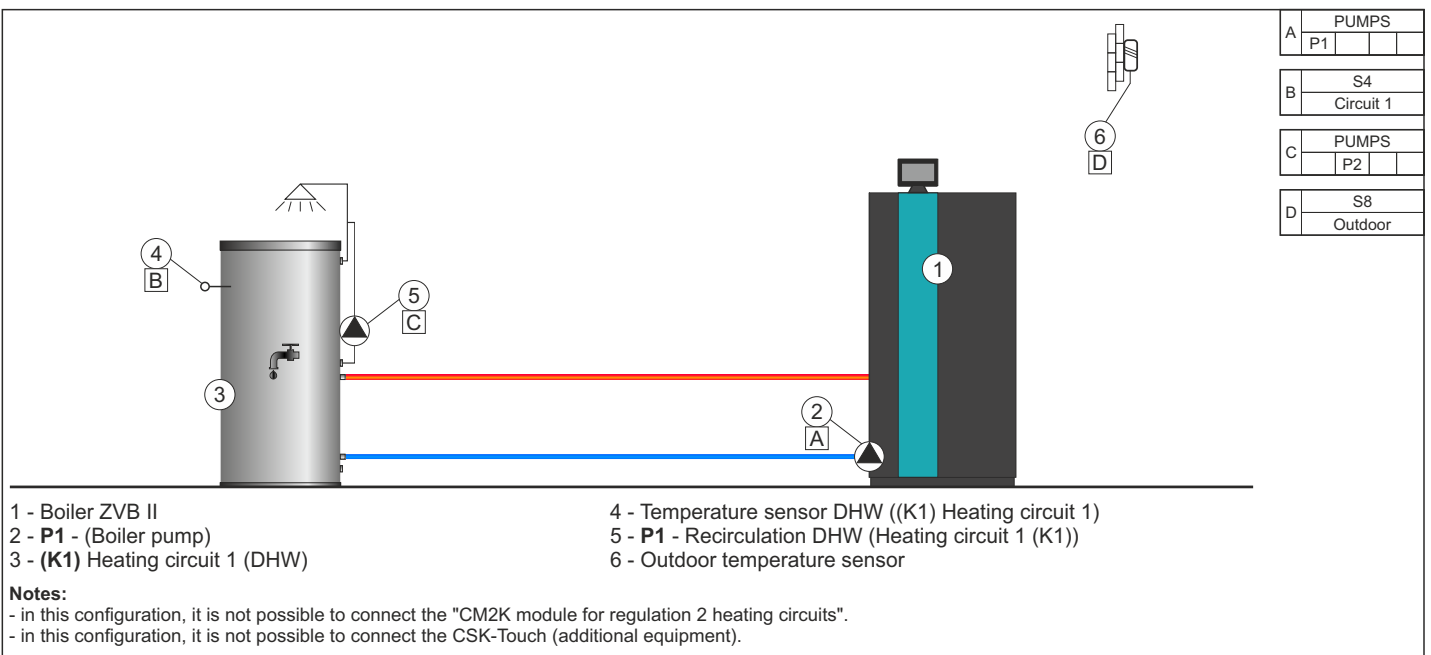


CONFIGURATION / SCHEME

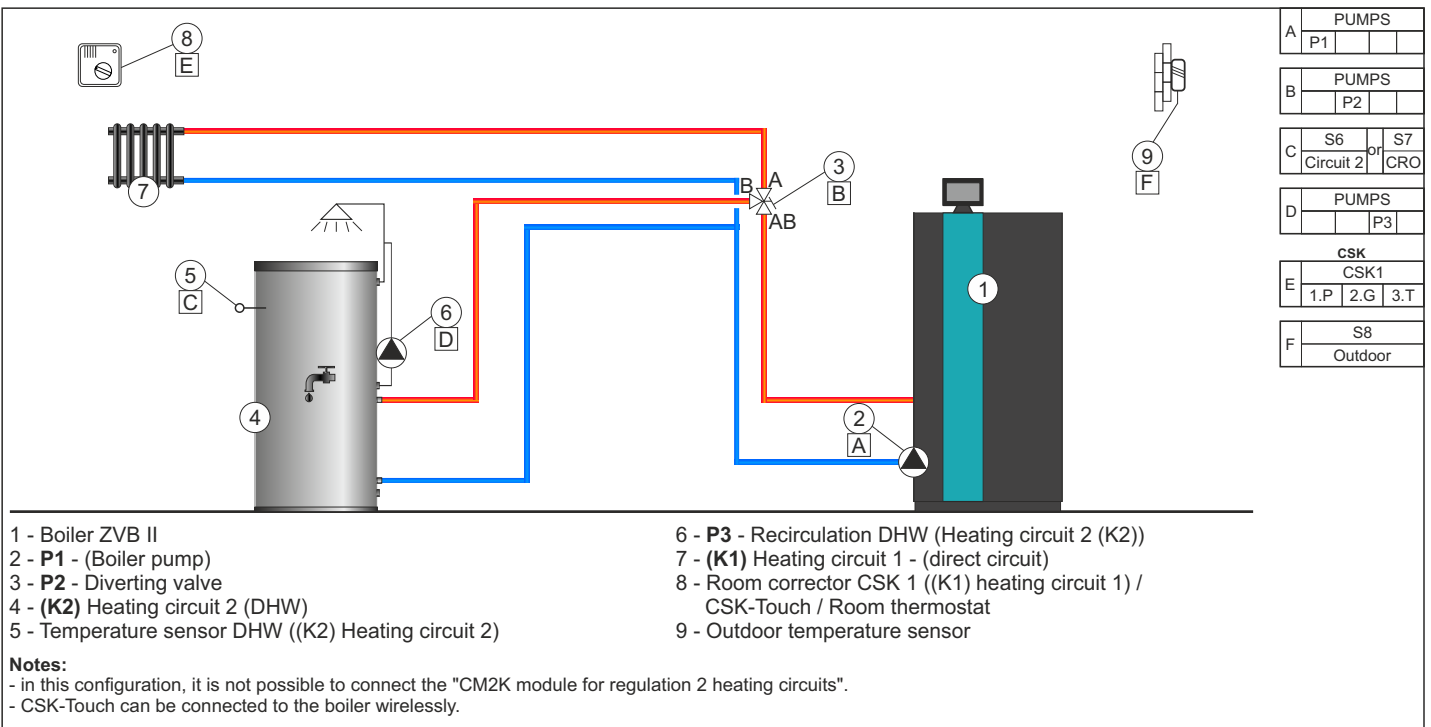
CONFIGURATION 1



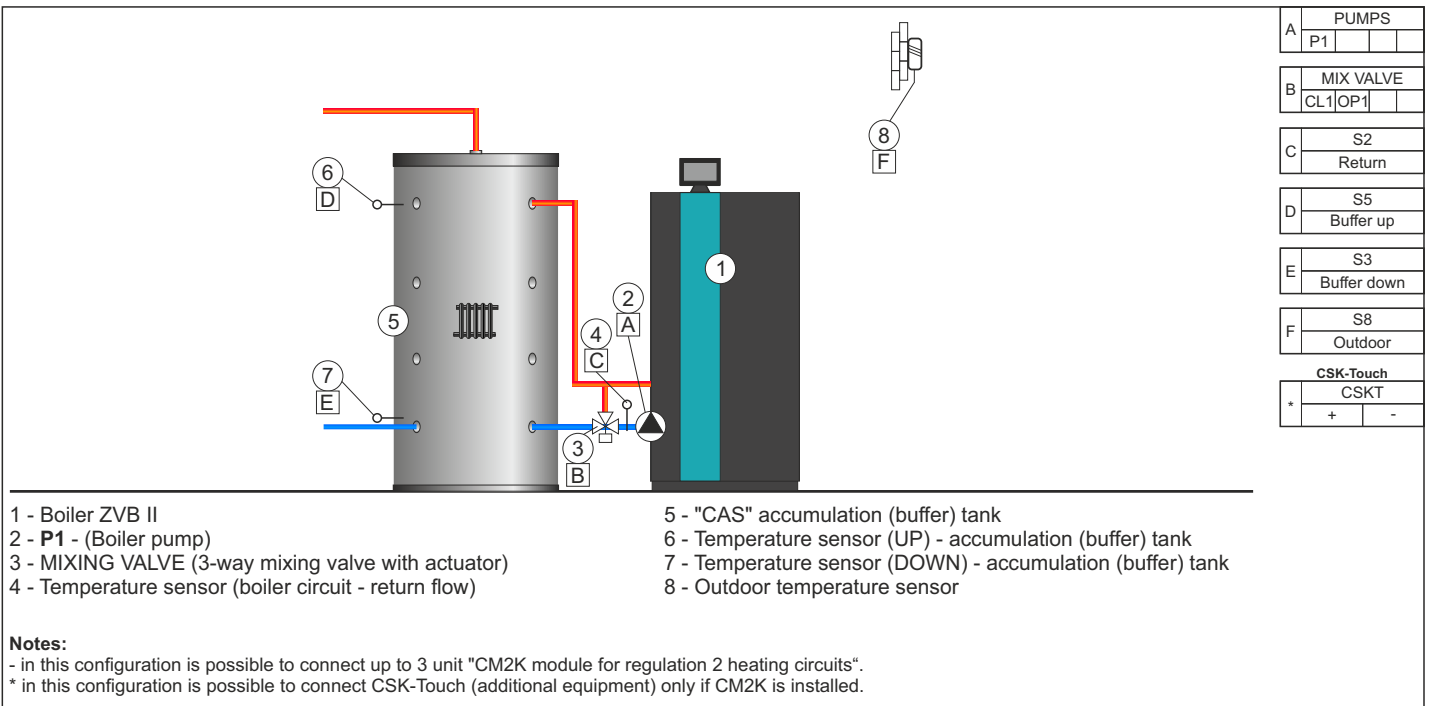
CONFIGURATION 2



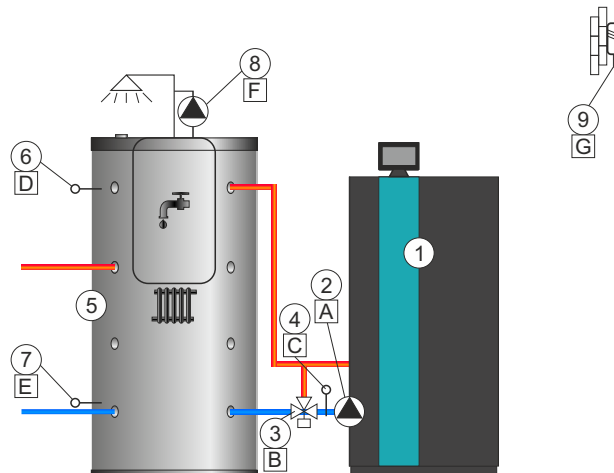
CONFIGURATION 3



CONFIGURATION 4



CONFIGURATION 5

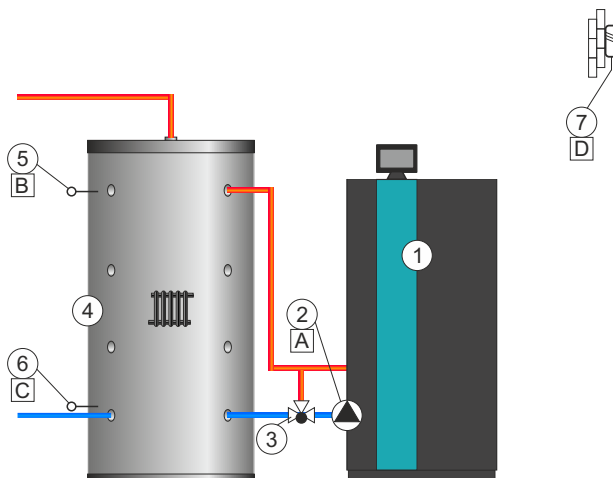


- 1 - Boiler ZVB II
 2 - **P1** - (Boiler pump)
 3 - MIXING VALVE (3-way mixing valve with actuator)
 4 - Temperature sensor (boiler circuit - return flow)
 5 - "CAS-B" accumulation (buffer) tank
 6 - Temperature sensor (UP) - accumulation (buffer) tank
 7 - Temperature sensor (DOWN) - accumulation (buffer) tank
 8 - **P2** - Recirculation DHW
 9 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 6

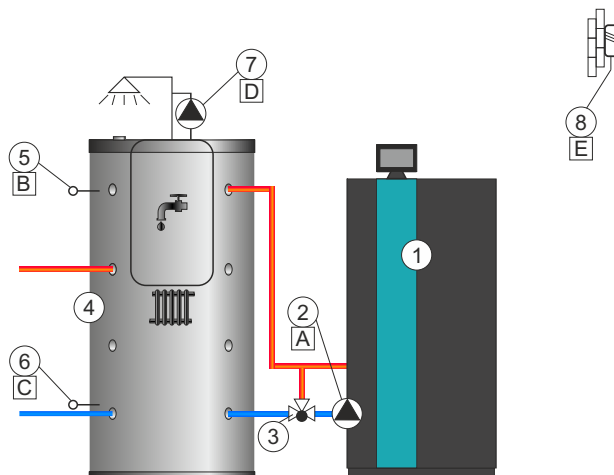


- 1 - Boiler ZVB II
 2 - **P1** - (Boiler pump)
 3 - Return flow protection (3-way thermostatic valve)
 4 - "CAS" accumulation (buffer) tank
 5 - Temperature sensor (UP) - accumulation (buffer) tank
 6 - Temperature sensor (DOWN) - accumulation (buffer) tank
 7 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 7



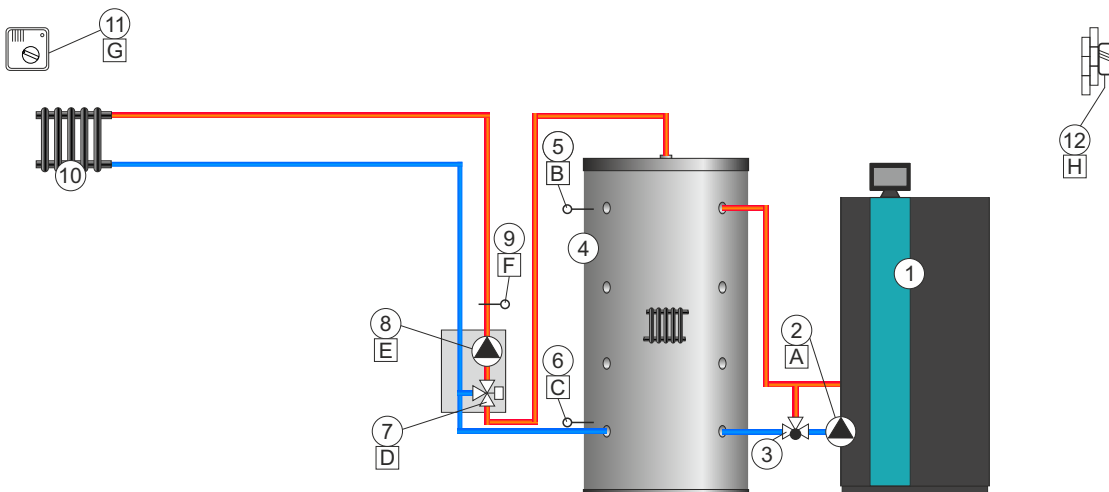
A	PUMPS
	P1
B	S5
	Buffer up
C	S3
	Buffer down
D	PUMPS
	P2
E	S8
	Outdoor
	CSK-Touch
*	CSKT
	+ -

- 1 - Boiler ZVB II
 2 - P1 - (Boiler pump)
 3 - Return flow protection (3-way thermostatic valve)
 4 - "CAS-B" accumulation (buffer) tank
 5 - Temperature sensor (UP) - accumulation (buffer) tank
 6 - Temperature sensor (DOWN) - accumulation (buffer) tank
 7 - P2 - Recirculation DHW
 8 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 8



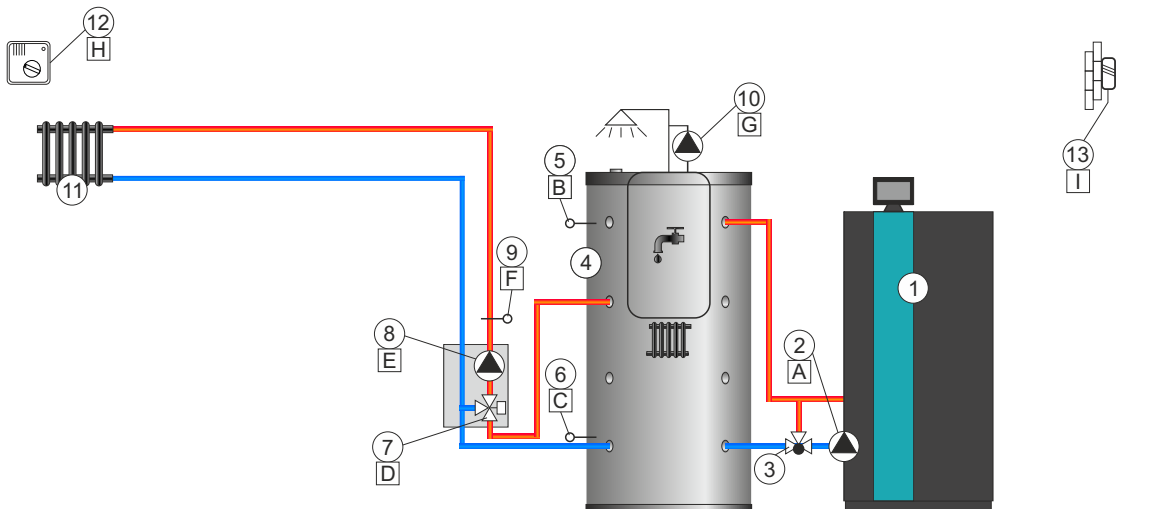
A	PUMPS
	P1
B	S5
	Buffer up
C	S3
	Buffer down
D	MIX VALVE
	CL1 OP1
E	PUMPS
	P2
F	S4
	Circuit 1
	CSK
G	CSK1
	1.P 2.G 3.T
H	S8
	Outdoor

- 1 - Boiler ZVB II
 2 - P1 - (Boiler pump)
 3 - Return flow protection (3-way thermostatic valve)
 4 - "CAS" accumulation (buffer) tank
 5 - Temperature sensor (UP) - accumulation (buffer) tank
 6 - Temperature sensor (DOWN) - accumulation (buffer) tank
 7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
 8 - P2 - (Heating circuit 1 (K1))
 9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
 10 - (K1) Heating circuit 1 (with mixing valve 1)
 11 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
 12 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- CSK-Touch can be connected to the boiler wirelessly.

CONFIGURATION 9



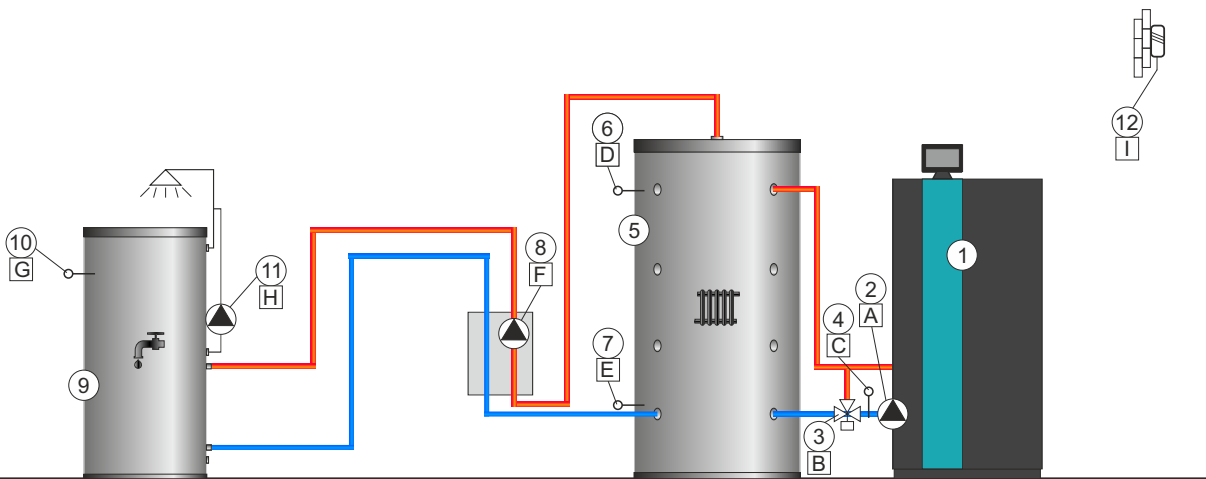
A	PUMPS
P1	
B	S5 Buffer up
C	S3 Buffer down
D	MIX VALVE CL1 OP1
E	PUMPS
P2	
F	S4 Circuit 1
G	PUMPS
P3	
CSK	
CSK1	
1.P	2.G 3.T
I	S8 Outdoor

- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - Return flow protection (3-way thermostatic valve)
- 4 - "CAS-B" accumulation (buffer) tank
- 5 - Temperature sensor (UP) - accumulation (buffer) tank
- 6 - Temperature sensor (DOWN) - accumulation (buffer) tank
- 7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
- 8 - P2 - (Heating circuit 1 (K1))
- 9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
- 10 - P3 - Recirculation DHW
- 11 - (K1) Heating circuit 1 (with mixing valve 1)
- 12 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
- 13 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- CSK-Touch can be connected to the boiler wirelessly.

CONFIGURATION 10



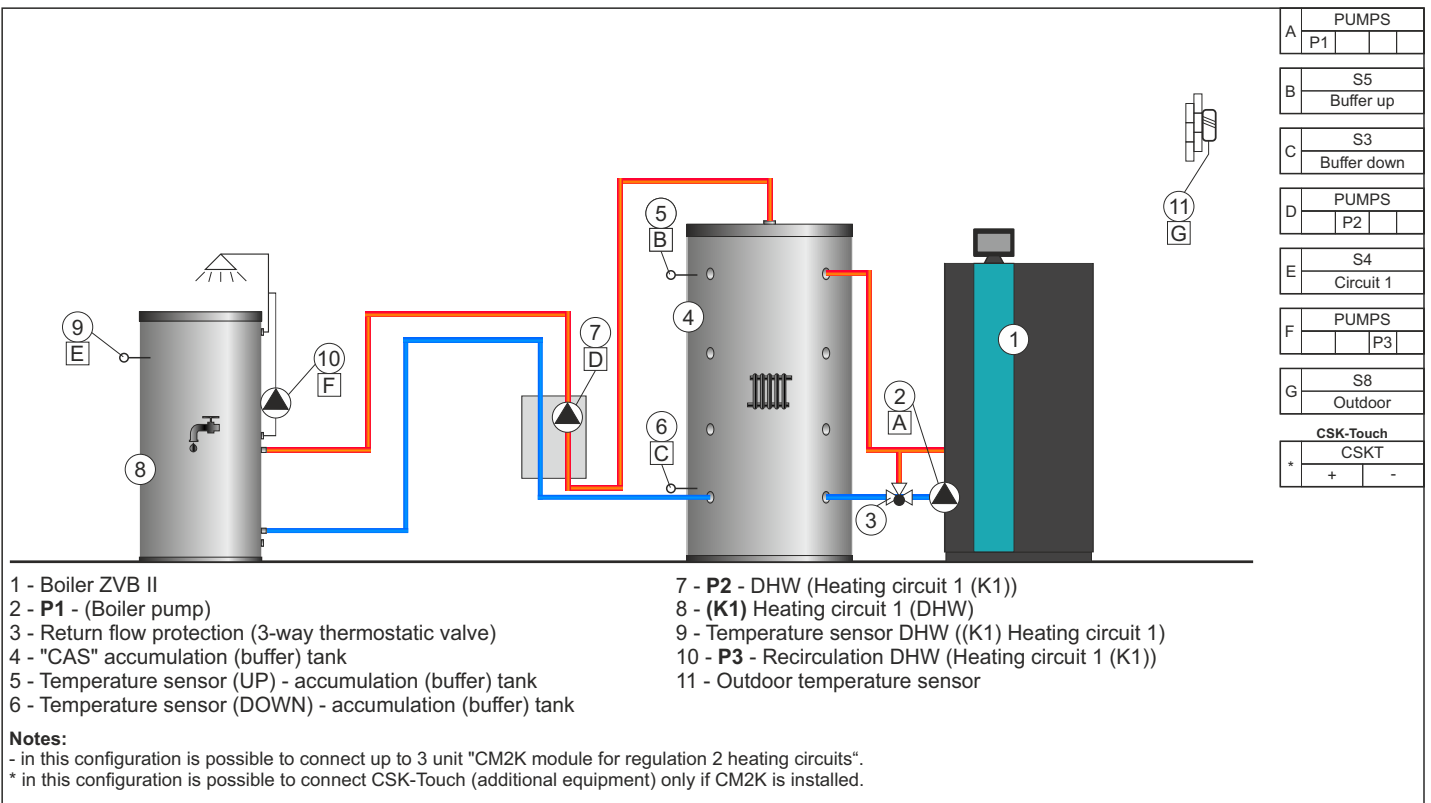
A	PUMPS
P1	
B	MIX VALVE CL1 OP1
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS
P2	
G	S4 Circuit 1
H	PUMPS
P3	
I	S8 Outdoor
CSK-Touch	
CSKT	
+	-

- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - MIXING VALVE (3-way mixing valve with actuator)
- 4 - Temperature sensor (boiler circuit - return flow)
- 5 - "CAS" accumulation (buffer) tank
- 6 - Temperature sensor (UP) - accumulation (buffer) tank
- 7 - Temperature sensor (DOWN) - accumulation (buffer) tank
- 8 - P2 - DHW (Heating circuit 1 (K1))
- 9 - (K1) Heating circuit 1 (DHW)
- 10 - Temperature sensor DHW ((K1) Heating circuit 1)
- 11 - P3 - Recirculation DHW (Heating circuit 1 (K1))
- 12 - Outdoor temperature sensor

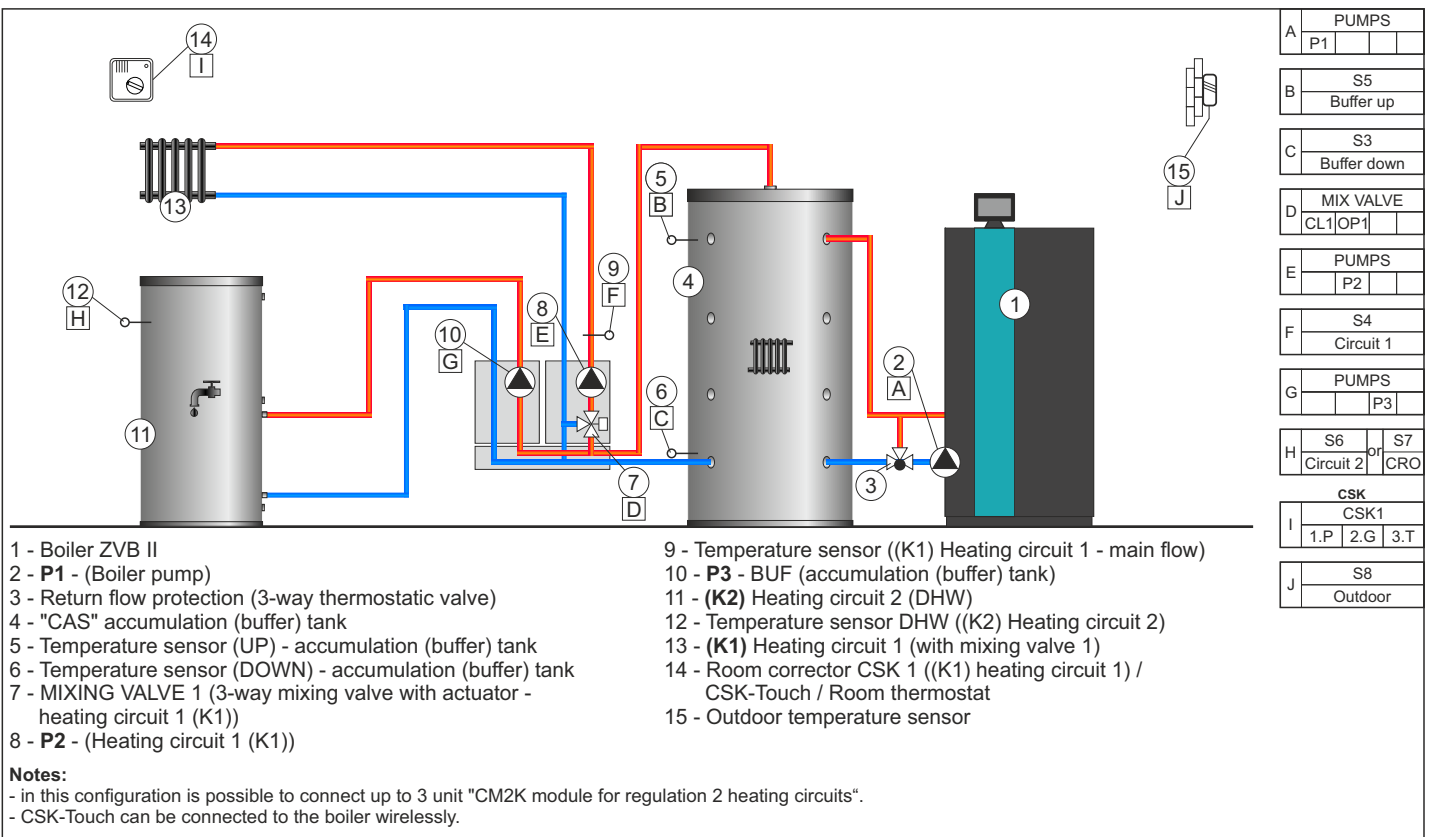
Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

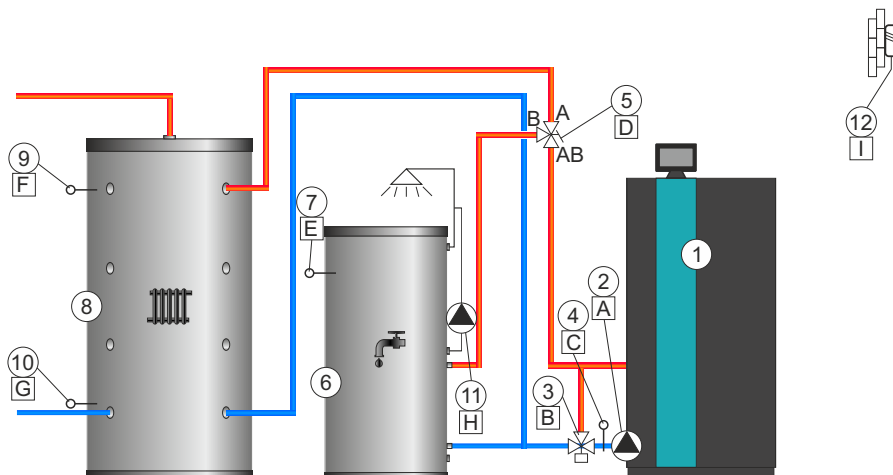
CONFIGURATION 11



CONFIGURATION 12



CONFIGURATION 13

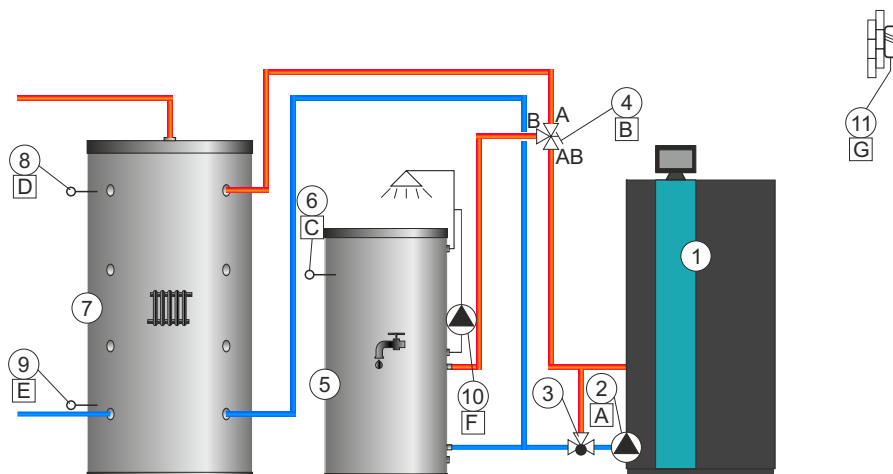


- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - MIXING VALVE (3-way mixing valve with actuator)
- 4 - Temperature sensor (boiler circuit - return flow)
- 5 - P2 - Diverting valve
- 6 - (K1) Heating circuit 1 (DHW)
- 7 - Temperature sensor DHW ((K1) Heating circuit 1)
- 8 - "CAS" accumulation (buffer) tank
- 9 - Temperature sensor (UP) - accumulation (buffer) tank
- 10 - Temperature sensor (DOWN) - accumulation (buffer) tank
- 11 - P3 - Recirculation DHW (Heating circuit 1 (K1))
- 12 - Outdoor temperature sensor

Notes:
 - in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
 * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

A	PUMPS	P1		
B	MIX VALVE	CL1	OP1	
C	S2	Return		
D	PUMPS	P2		
E	S4	Circuit 1		
F	S5	Buffer up		
G	S3	Buffer down		
H	PUMPS	P3		
I	S8	Outdoor		
		CSK-Touch		
		CSKT		
*		+		-

CONFIGURATION 14

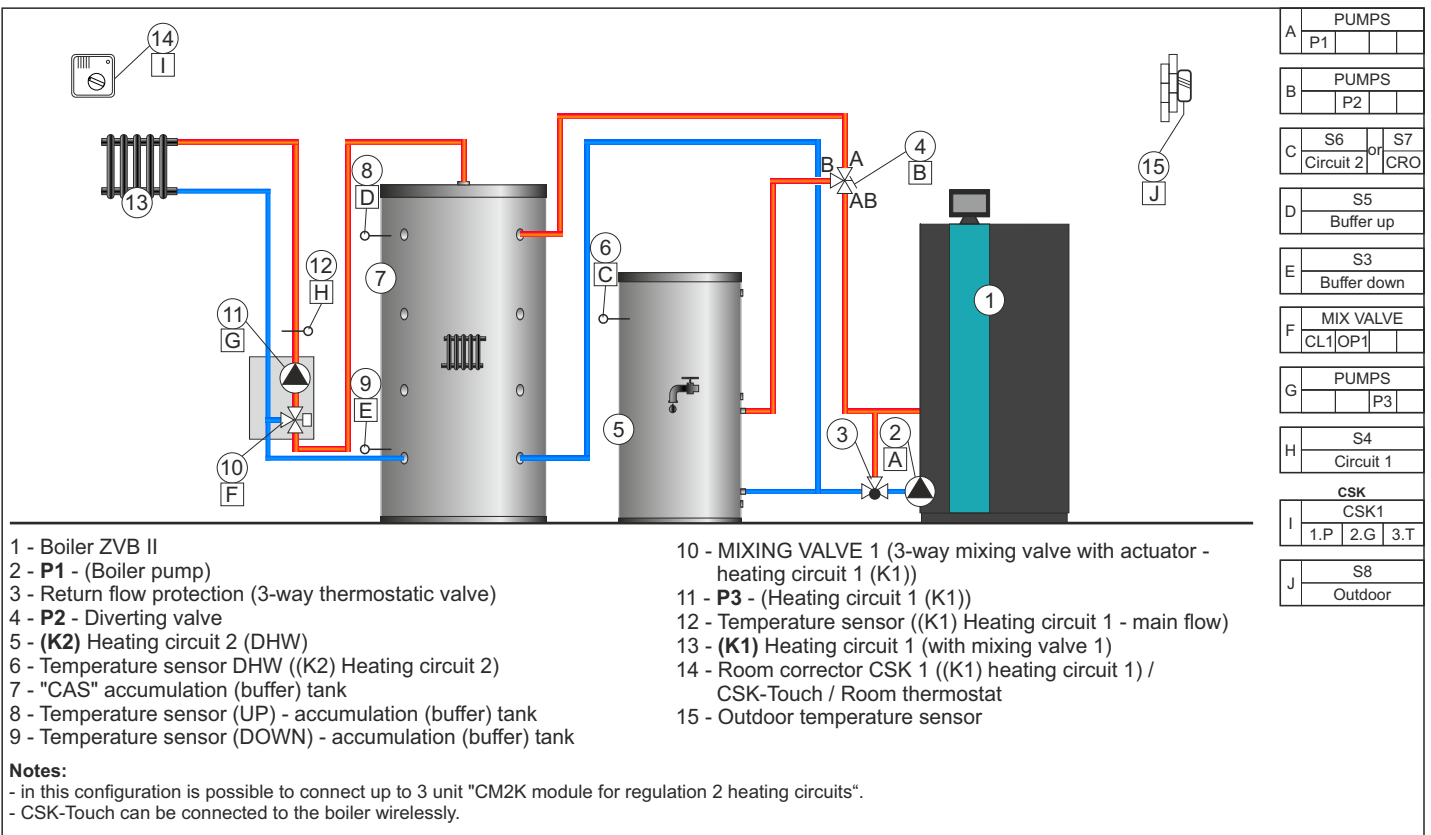


- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - Return flow protection (3-way thermostatic valve)
- 4 - P2 - Diverting valve
- 5 - (K1) Heating circuit 1 (DHW)
- 6 - Temperature sensor DHW ((K1) Heating circuit 1)
- 7 - "CAS" accumulation (buffer) tank
- 8 - Temperature sensor (UP) - accumulation (buffer) tank
- 9 - Temperature sensor (DOWN) - accumulation (buffer) tank
- 10 - P3 - Recirculation DHW (Heating circuit 1 (K1))
- 11 - Outdoor temperature sensor

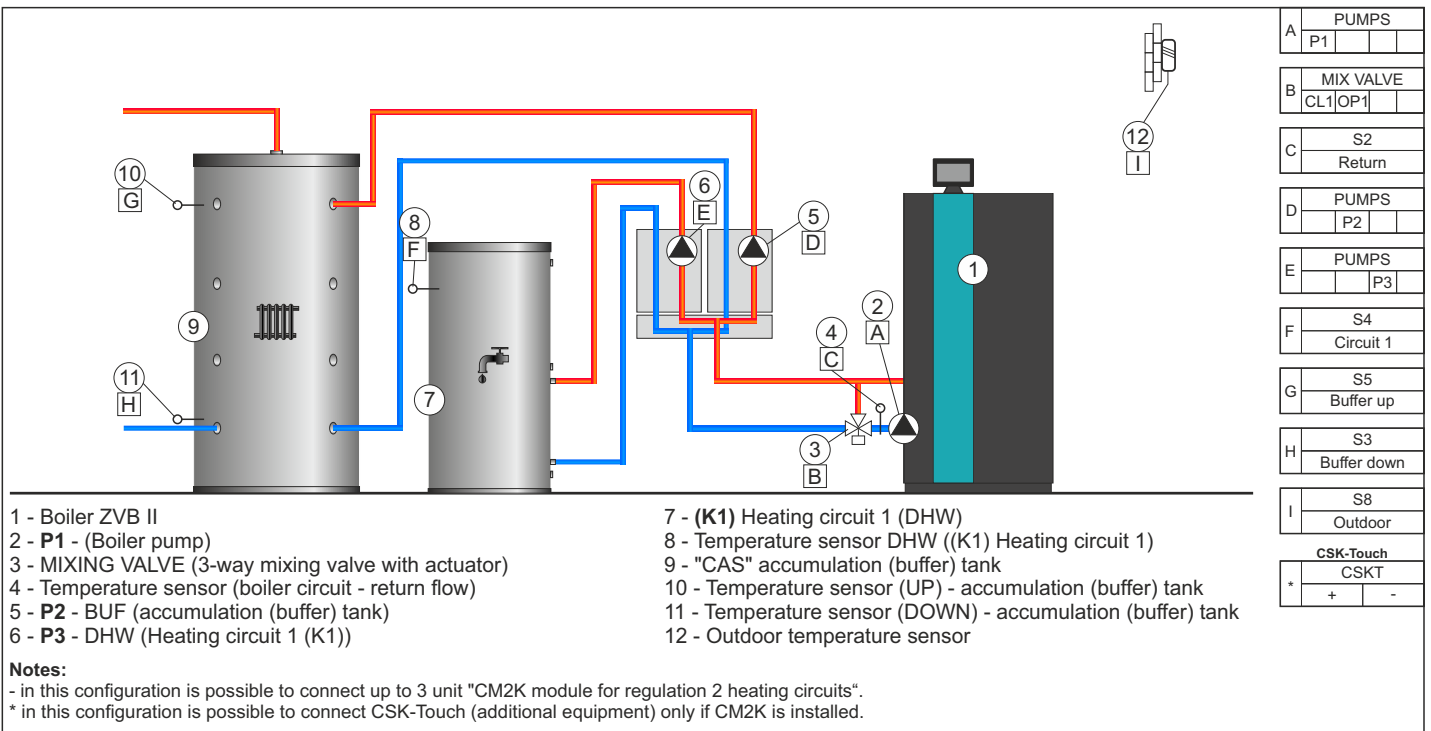
Notes:
 - in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
 * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

A	PUMPS	P1		
B	PUMPS	P2		
C	S4	Circuit 1		
D	S5	Buffer up		
E	S3	Buffer down		
F	PUMPS	P3		
G	S8	Outdoor		
		CSK-Touch		
		CSKT		
*		+		-

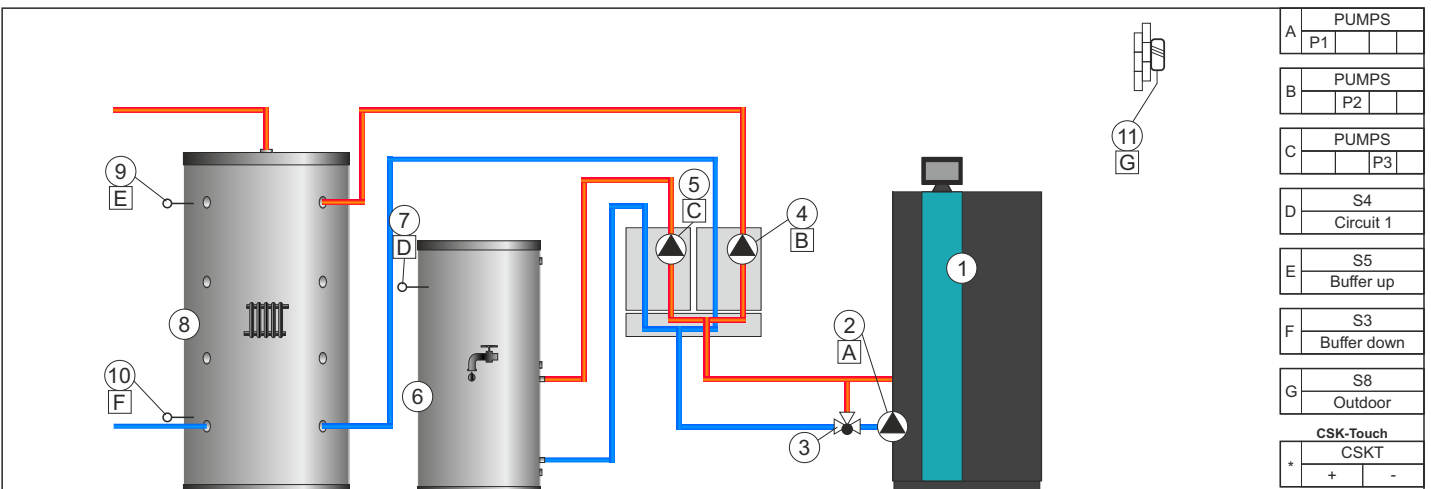
CONFIGURATION 15



CONFIGURATION 16



CONFIGURATION 17

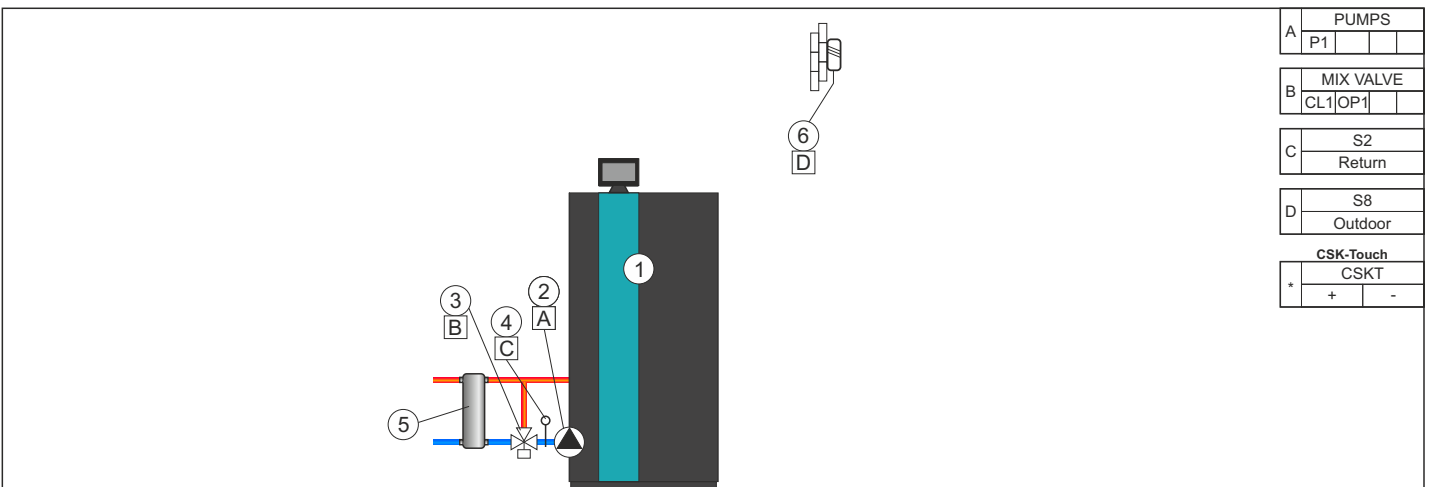


- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - Return flow protection (3-way thermostatic valve)
- 4 - P2 - BUF (accumulation (buffer) tank)
- 5 - P3 - DHW (Heating circuit 1 (K1))
- 6 - (K1) Heating circuit 1 (DHW)
- 7 - Temperature sensor DHW ((K1) Heating circuit 1)
- 8 - "CAS" accumulation (buffer) tank
- 9 - Temperature sensor (UP) - accumulation (buffer) tank
- 10 - Temperature sensor (DOWN) - accumulation (buffer) tank
- 11 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 18

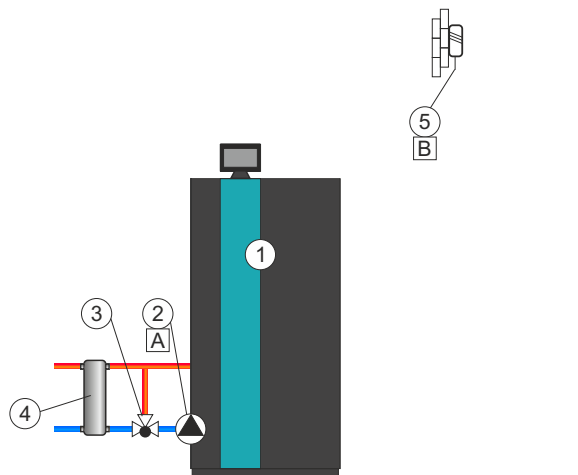


- 1 - Boiler ZVB II
- 2 - P1 - (Boiler pump)
- 3 - MIXING VALVE (3-way mixing valve with actuator)
- 4 - Temperature sensor (boiler circuit - return flow)
- 5 - Hydraulic crossover
- 6 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 19



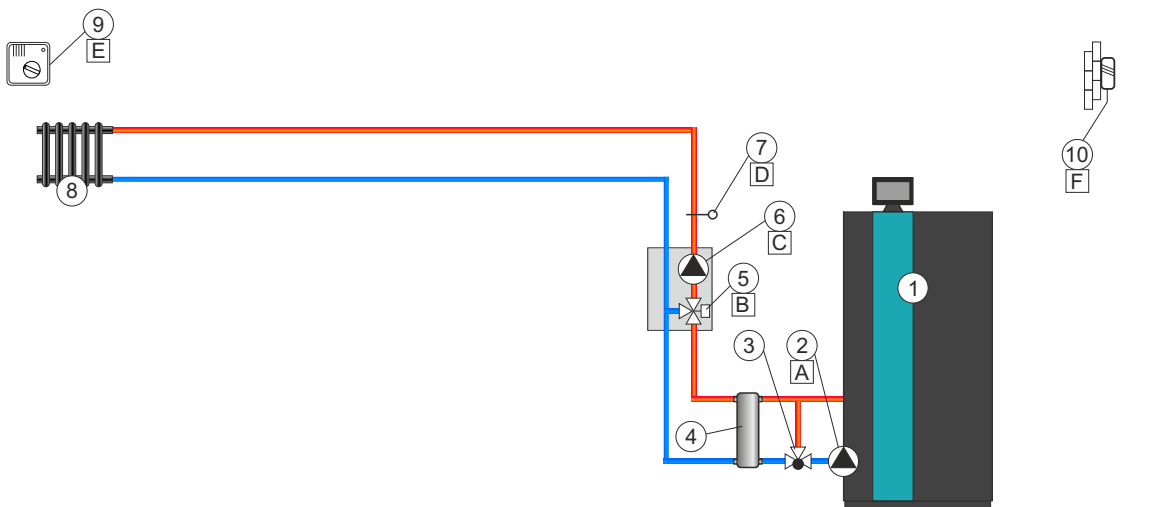
PUMPS	
A	P1
S8	
Outdoor	
CSK-Touch	
*	CSKT
	+ -

- 1 - Boiler ZVB II
 2 - **P1** - (Boiler pump)
 3 - Return flow protection (3-way thermostatic valve)
 4 - Hydraulic crossover
 5 - Outdoor temperature sensor

Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- * in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 20



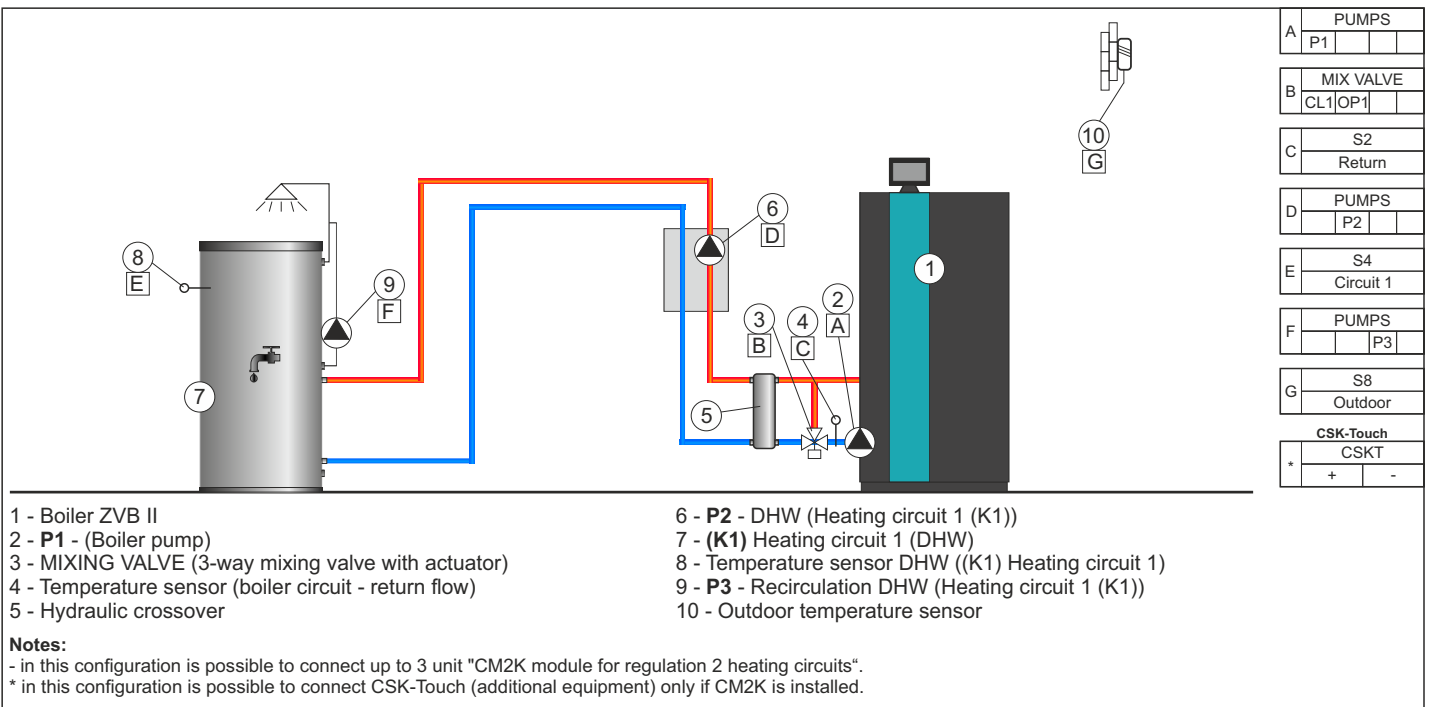
PUMPS	
A	P1
MIX VALVE	
B	CL1 OP1
PUMPS	
C	P2
S4	
Circuit 1	
CSK	
CSK1	
E	1.P 2.G 3.T
S8	
Outdoor	

- 1 - Boiler ZVB II
 2 - **P1** - (Boiler pump)
 3 - Return flow protection (3-way thermostatic valve)
 4 - Hydraulic crossover
 5 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
 6 - **P2** - (Heating circuit 1 (K1))
 7 - Temperature sensor ((K1) Heating circuit 1 - main flow)
 8 - (**K1**) Heating circuit 1 (with mixing valve 1)
 9 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
 10 - Outdoor temperature sensor

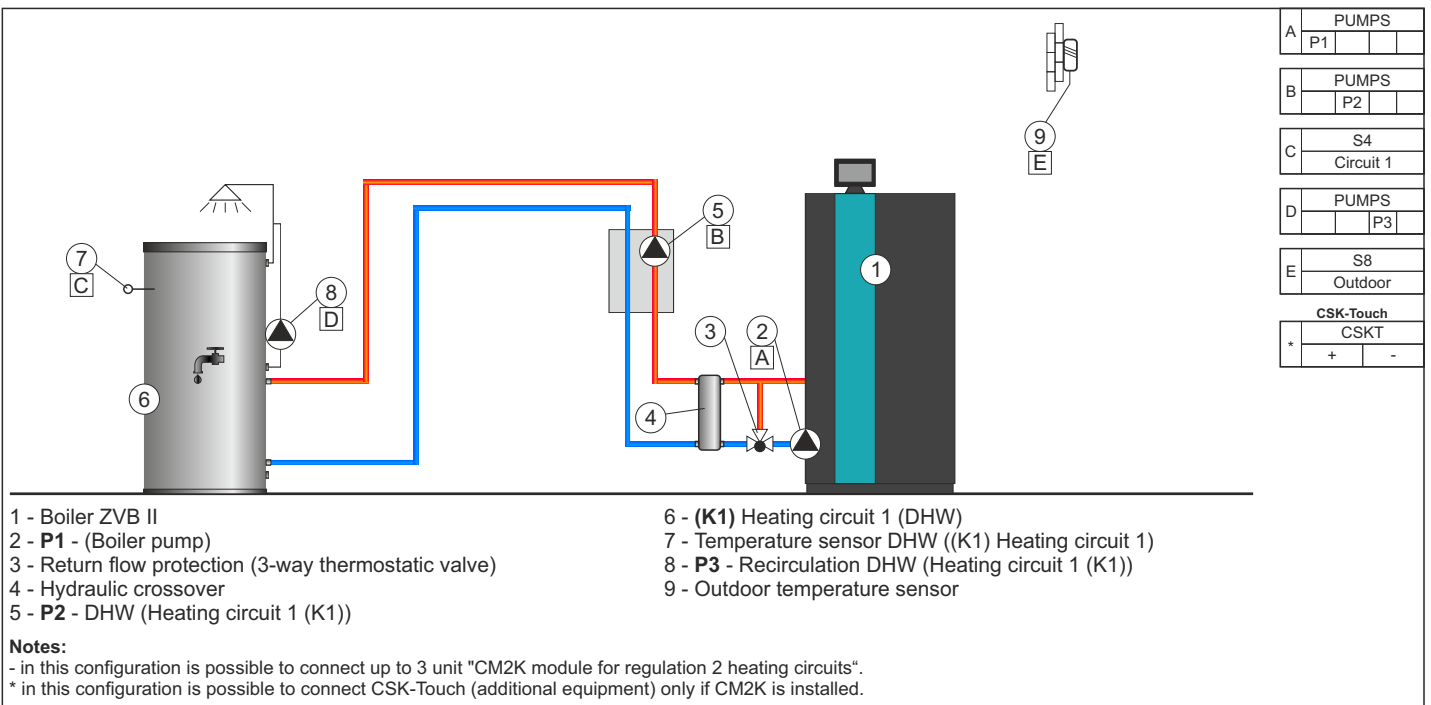
Notes:

- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- CSK-Touch can be connected to the boiler wirelessly.

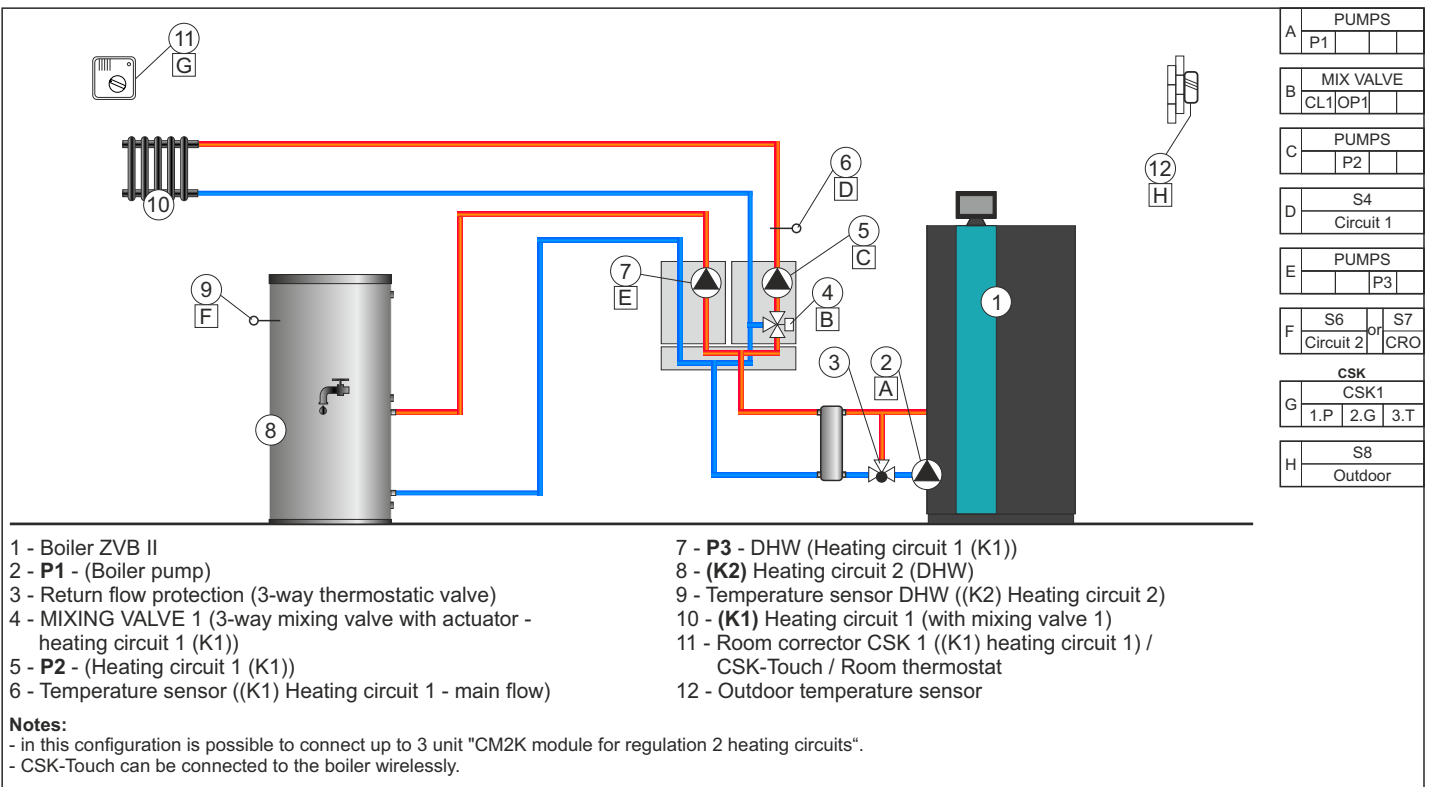
CONFIGURATION 21



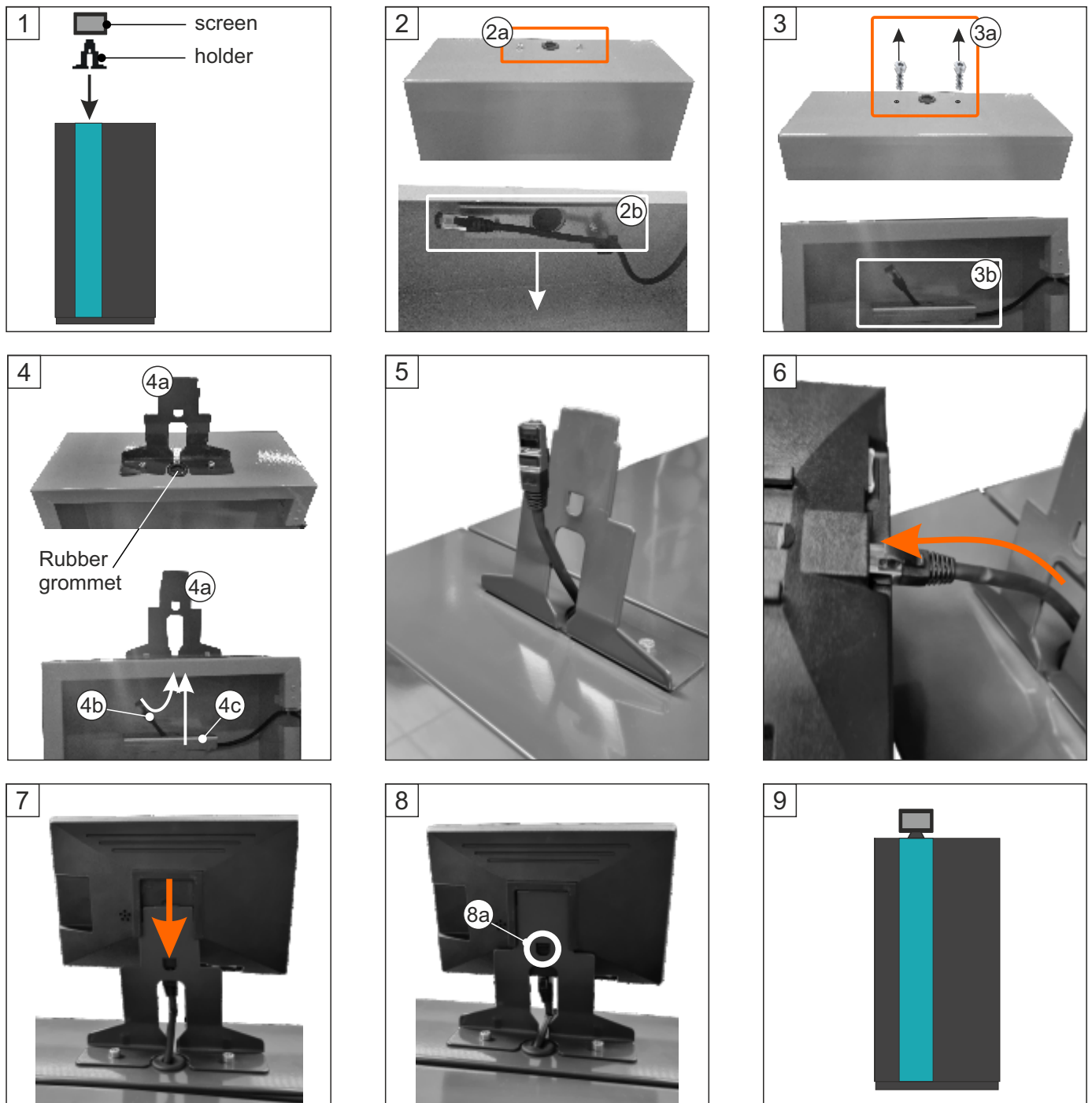
CONFIGURATION 22



CONFIGURATION 23



Holder and boiler control unit screen installation (7")



1. The place where the *holder* with the *screen* should be mounted.
2. It is necessary to unscrew the two screws (2a) which hold the metal plate and the UTP cable (2b).
3. Step 3 shows the state after removing the screws (3a). The metal plate and the UTP cable (3b) will be separate.
4. Place the *holder* in the intended location (4a). Pass the UTP cable (4b) through the rubber cable gland and screw the holder (4a) and metal plate (4c) together, using two screws (3a).
5. Screen *holder* and UTP cable after installation.
6. Connect the UTP cable to the *screen*.
7. Place the *screen* on the *holder* and pull it down.
8. Pull the *screen* down, until the marked part of the plastic fits into the slot (8a).
9. Boiler state with *holder* and *screen*.

CHANGING THE BOILER CONTROL UNIT SCREEN BATTERY (CR 1632)

If there is a significant clock delay or the clock settings are automatically set to 00:00 and the date to 1.1.2020. (after turning OFF/ON the main switch of the boiler or after a power failure) it is necessary to replace the battery located on the bottom side of the screen (battery type CR 1632). The battery needs to be replaced even if the warning W 9 or error E 48 appears. The clock can be wrong, the delay can be 2-3 minutes per month which is considered normal, we recommend that you adjust it periodically. How to adjust the clock is described in the technical instructions for controller_book_2/2.

The battery is located on the bottom side of the screen (1). First, use a small thing to pull out the plastic box battery (2), which has two polarities (3). Replace the battery and make sure it is turned the right way (4). Place the battery in the plastic box (5) and insert it to the end of the slot so that it is in its original position, aligned with the metal part (6).



FUSES

Main PCB: UniDrive



Main PCB: UniDrive

MARK	FUSE	DEVICES
F1	3,15 A, F	- Pumps P1, P2, P3, P4 (total max. = 3 A) - UniDrive PCB power supply
F2	3,15 A, F	- Electric heater - Flue gas fan (with RPM sensor) - Mixing valve - Pellet screw feeder motor

Back side of the boiler: main fuse

MARK	FUSE	DEVICES
F1	6,3 A, M	- Main fuse (PCB and all devices on the boiler)

Note:

Acting fuses:

M = Medium Acting Fuse (Mitteltrage)

F = Fast Acting Fuse (Flink)

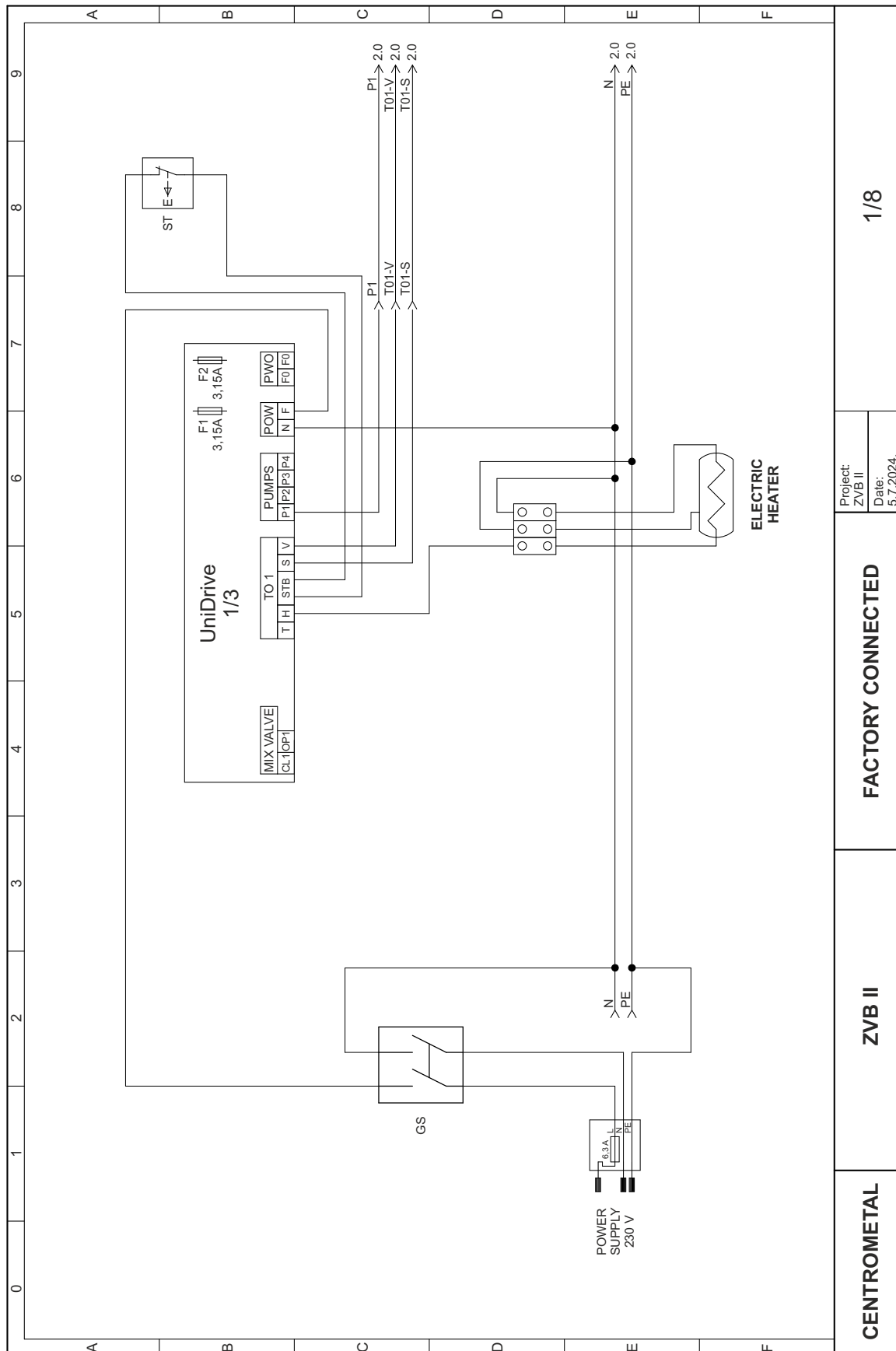


IMPORTANT: When replacing a fuse, be sure turn OFF the boiler at the main switch and unplug the power cord.

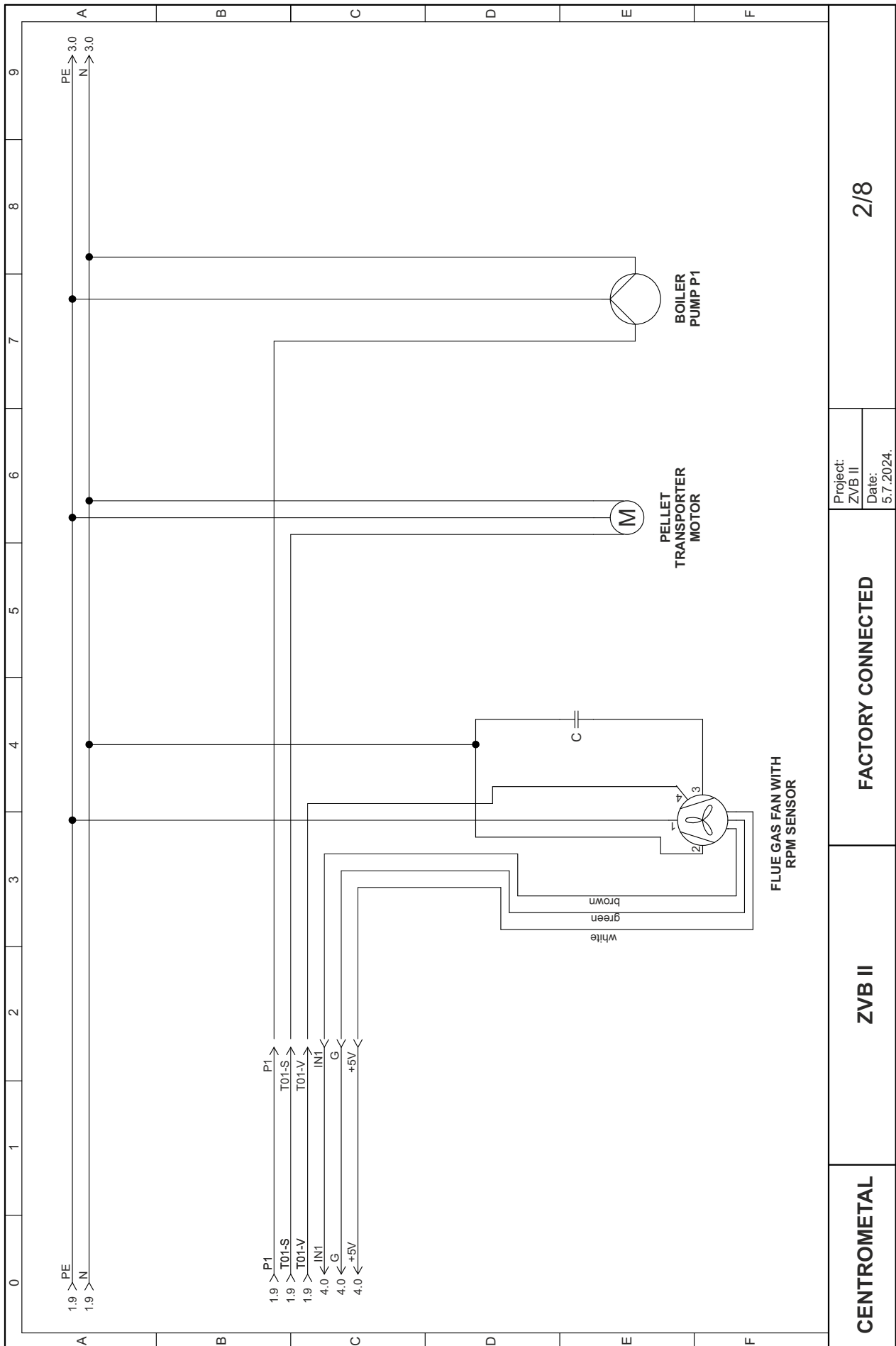
ELECTRICAL SCHEME



All electrical connections must be made according to this electrical scheme.



CENTROMETAL	ZVB II	FACTORY CONNECTED	Project: ZVB II	1/8
			Date: 5.7.2024.	



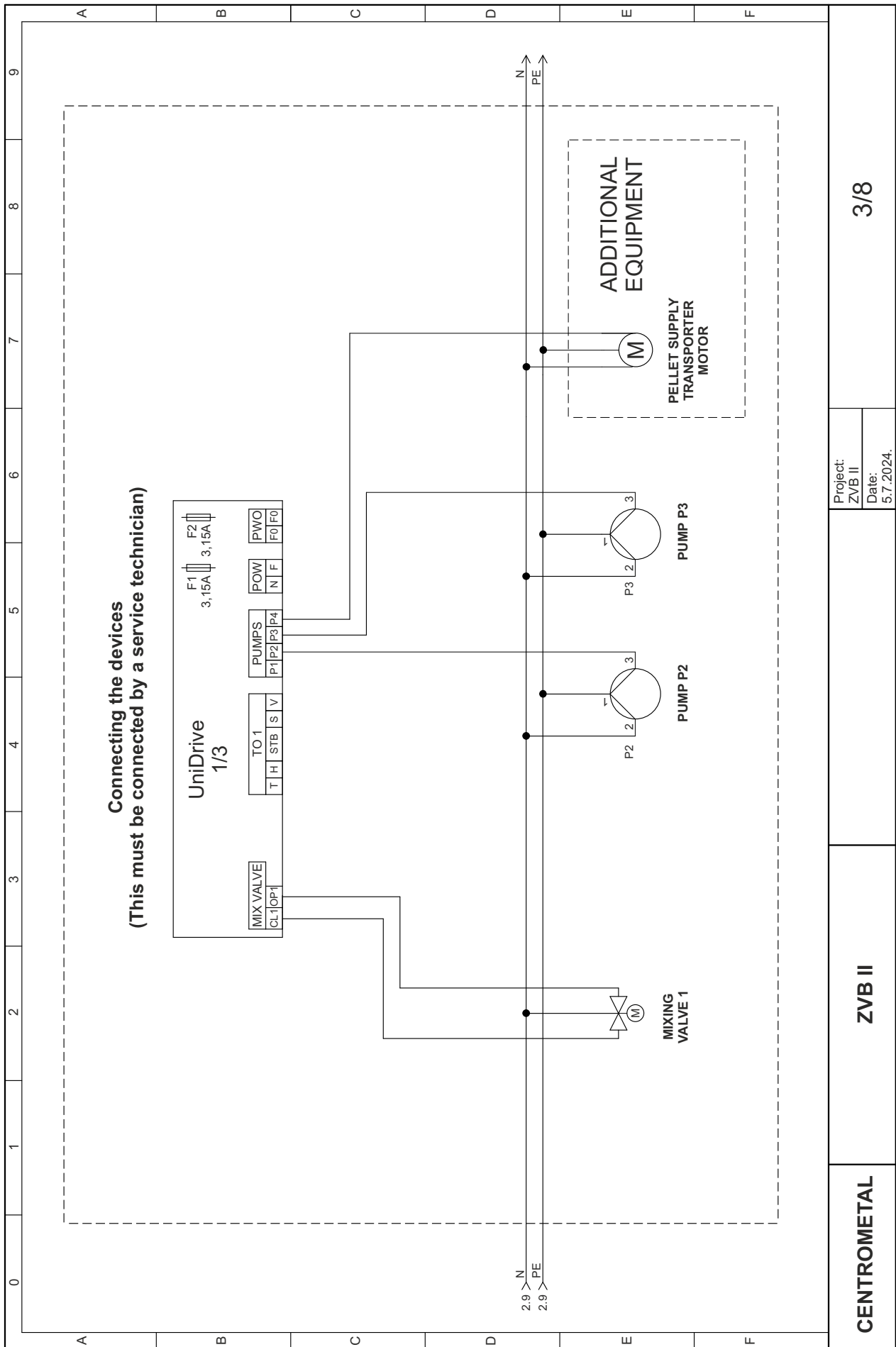
Project: ZVB II
Date: 5.7.2024.

FACTORY CONNECTED

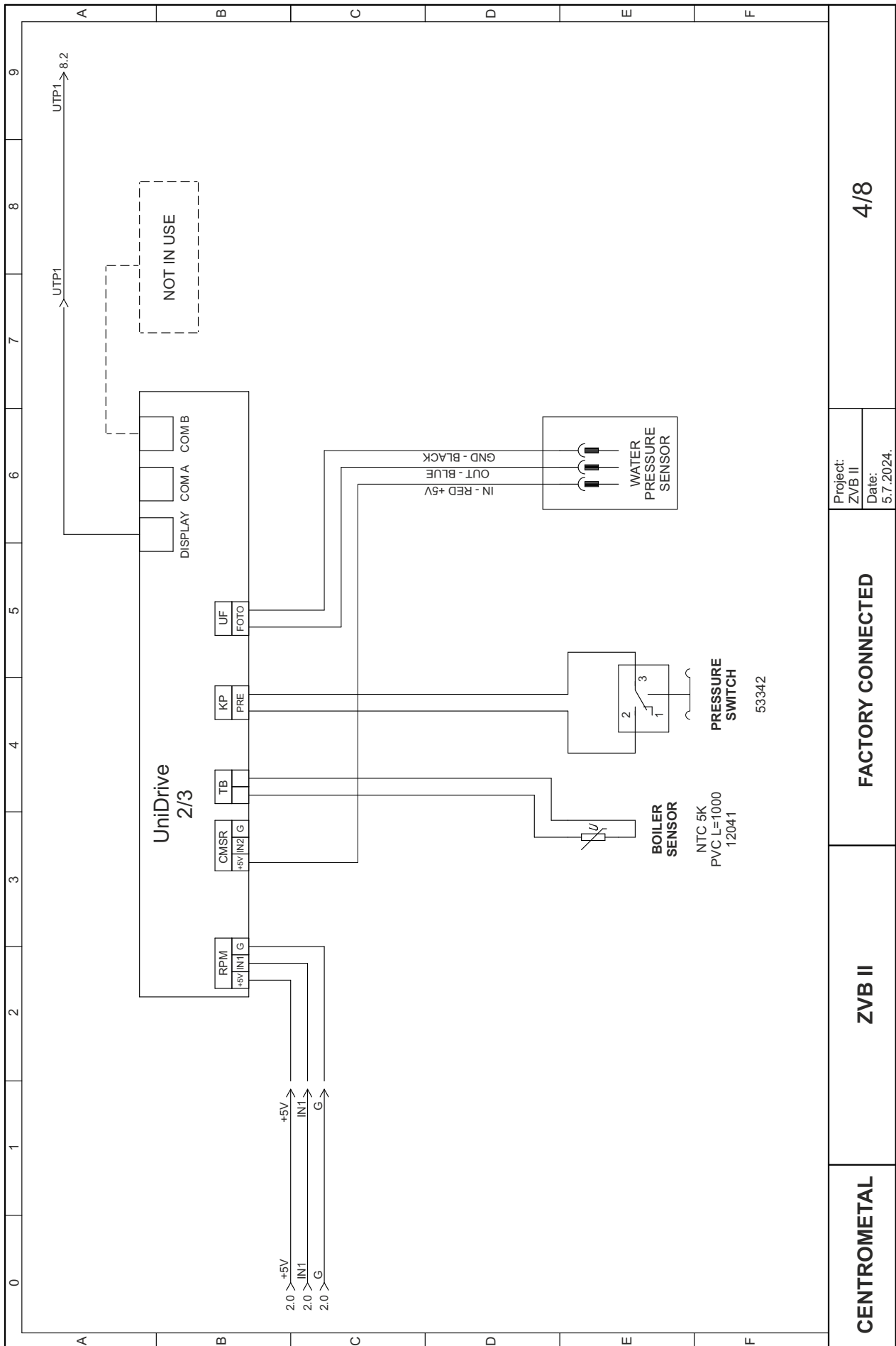
ZVB II

CENTROMETAL

2/8



Project: ZVB II
Date: 5.7.2024.

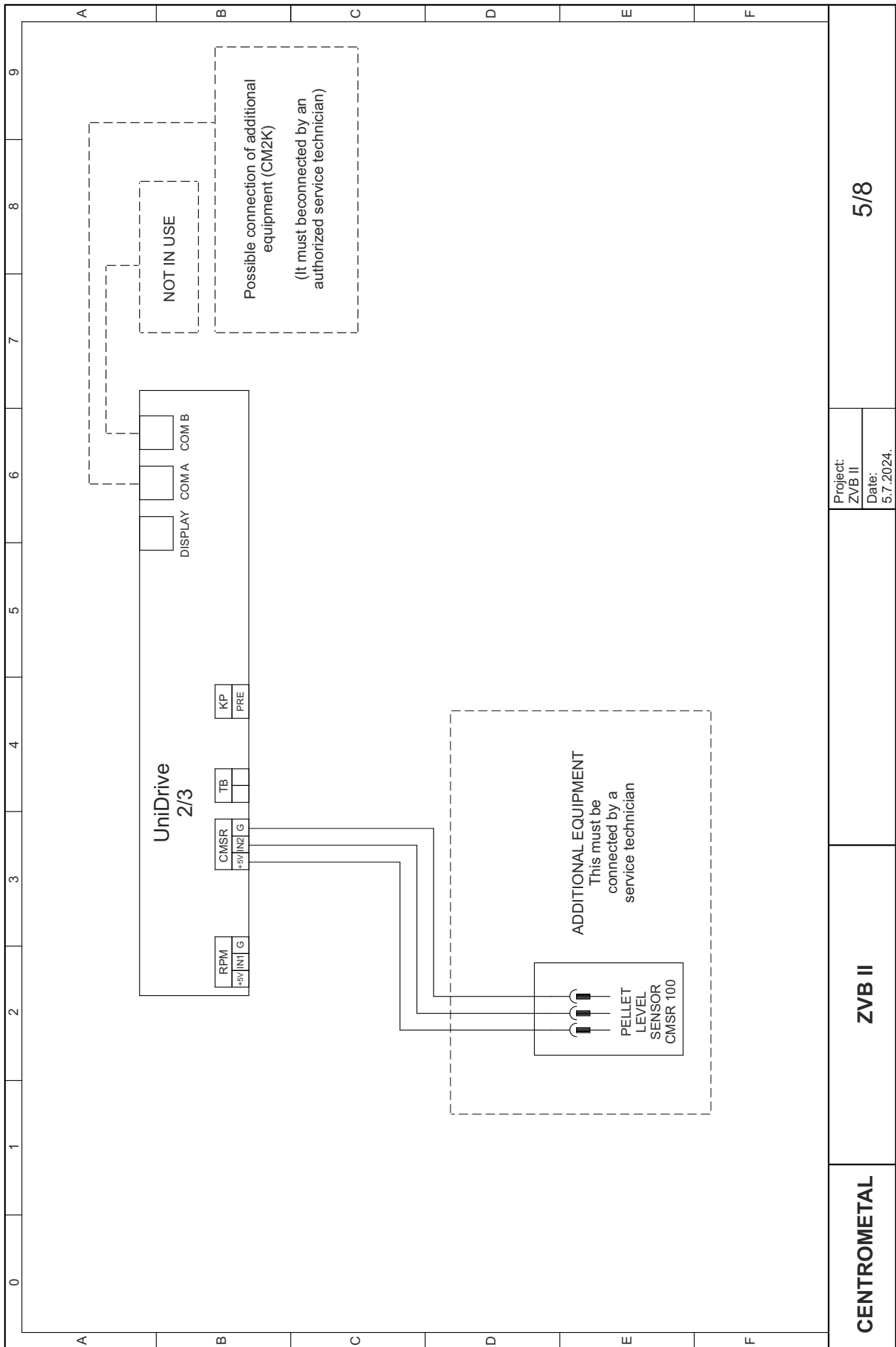


Project: ZVB II
Date: 5.7.2024.

FACTORY CONNECTED

ZVB II

CENTROMETAL

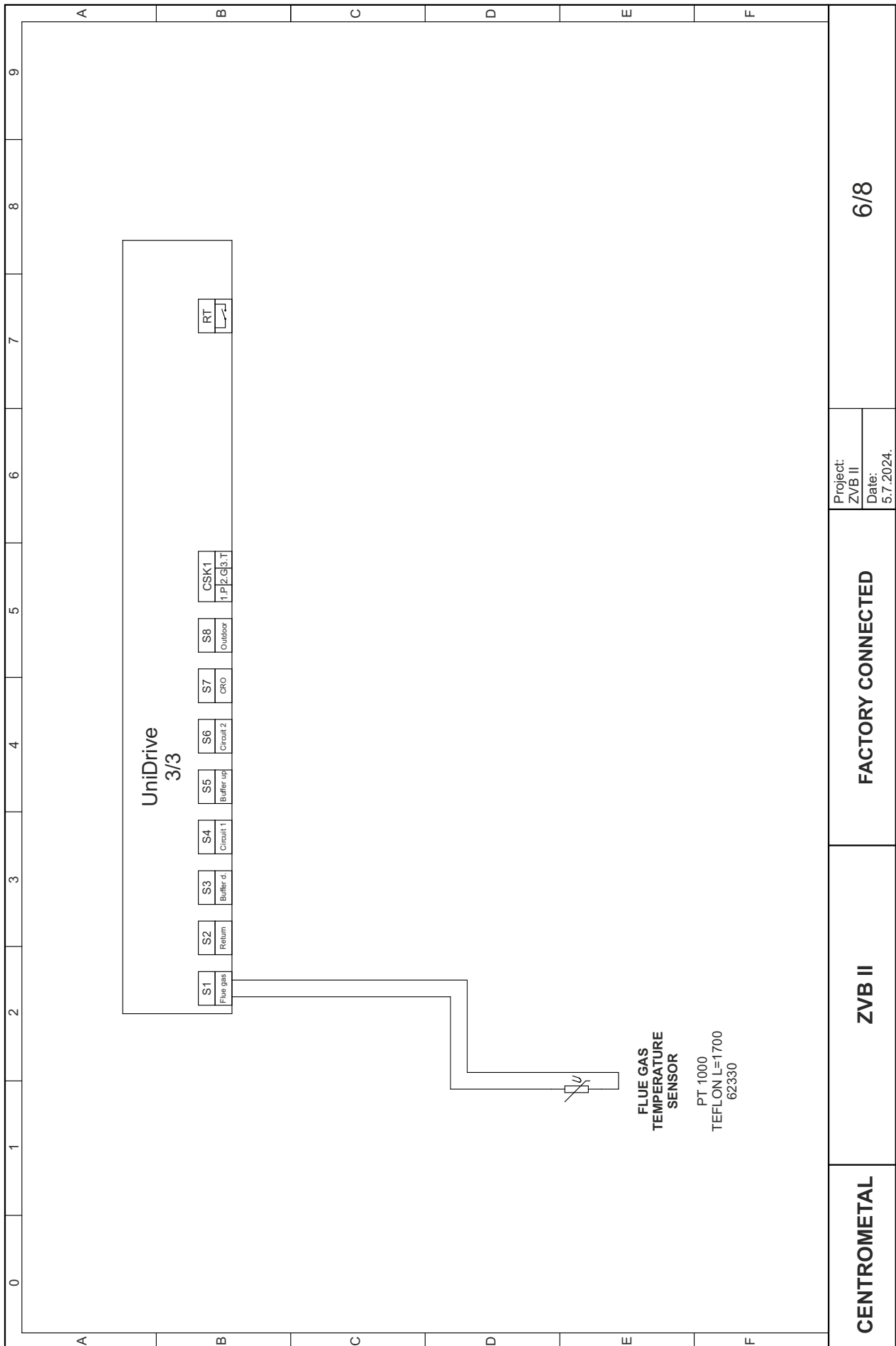


Project:
ZVB II
Date:
5.7.2024.

5/8

ZVB II

CENTROMETAL



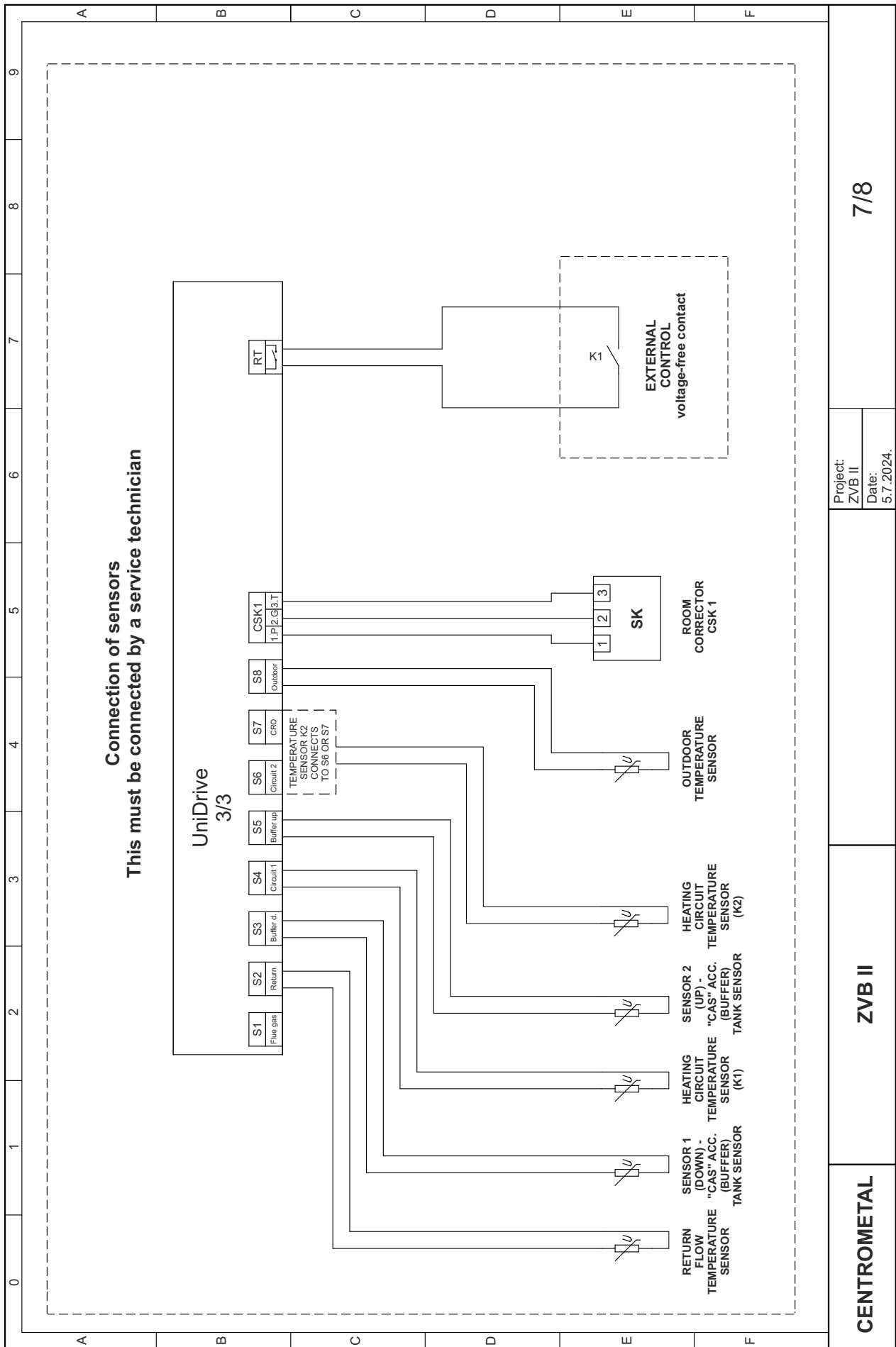
Project:
ZVB II
Date:
5.7.2024.

FACTORY CONNECTED

ZVB II

CENTROMETAL

6/8

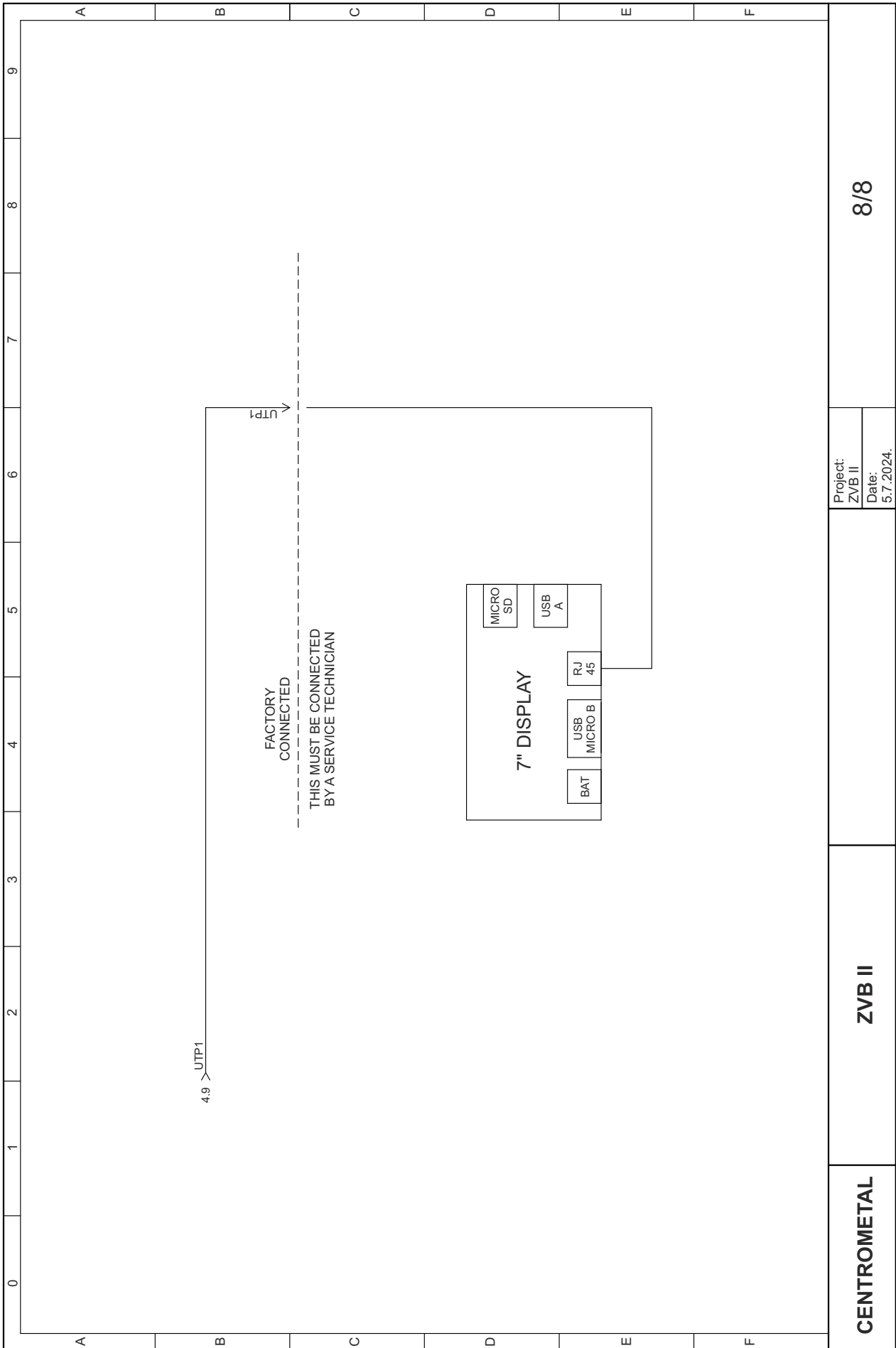


Project: ZVB II
Date: 5.7.2024.

ZVB II

CENTROMETAL

7/8



CLEANING AND MAINTENANCE



When turning off the boiler, never just pull the plug from the power supply, but let the boiler go through the shutdown phase on its own, otherwise problems may arise during the next start-up.

Maintenance and cleaning of the grate and boiler without automatic grate cleaning and automatic ash removal:



Important! All cleaning of all parts must be carried out with the Boiler completely cold and unplugged to avoid burns and thermal shock. The boiler does not need much maintenance if used with certified quality pellet. The need for maintenance varies depending on the conditions of use (switching on and off repeatedly) and depending on the performance required. It is recommended periodic monitoring of the boiler to check its condition.

Parts	Everyday	Every 2-3 days	Every week	Every 60-90 days	Every 1 year
Brazier	✓				
Cleaning around the ash tray		✓			
Cleaning ashtray		✓			
Cleaning door and glass		✓			
Exchanger (turbulators)	✓				
Cleaning the interior heat exchanger				✓	
Cleaning complete exchanger					✓S
Clean "T" to exhaust				✓	
Cleaning the flue gas outlet					✓S
Door gasket ash				✓S	
Internal parts					✓S
Outlet pipe					✓S
Circulation pump					✓S
Hydraulic components					✓S
Electromechanical components					✓S

✓ by the user

✓S by the authorised qualified technical assistance

In the case of using worse pellets, cleaning at more frequent intervals is recommended.

The compact boiler requires simple and daily cleaning to always ensure smooth and efficient operation. When cleaning the interior parts of the boiler, you can turn on the fan to avoid ash scattering around the room. To activate this option:

1. Press the "Maintenance" on the regulation and then "Manual Boiler Cleaning".
2. Press the "ON" button with the desired fan speed.
3. By using scraper, brush or vacuum cleaner, through the door clean exchanging surfaces.
4. After you finish cleaning, press "back" on regulation to control the boiler back to normal mode and close the combustion chamber door.

Clean the grate using the appropriate tool from the ash and any incrustation which could obstruct the passage of air. In the case of depletion of pellets in the tank may accumulate unburned pellets in the burn pot. Always empty the residuals from the grate before each start. Remember that only a brazier located and clean properly can ensure ignition and optimal operation of your boiler. When positioning the brazier, carefully check that the ends of the brazier completely adhere to their home and that the hole with pipe dedicated to the passage of the resistance.

ZVB II 20



The air holes must always be clean and passable for the boiler to work properly!

Cleaning exchanger - boiler off

Fouling act as insulation and the thicker they are, the lower the heat that is transmitted to the water and to the structure generally. Therefore very important to perform the cleaning of the tube bundle, said exchanger also, to prevent the fouling of the same and prevent clogging and jamming of the cleaning device. Pull and push quickly for about 20 times the lever so that the springs can remove the soot deposited on the pipes.

Boiler maintenance and cleaning:

Lever on the upper side of the boiler



Do not clean the painted parts with wet rags when the unit is in operation or hot to prevent thermal shock to the paint which may cause it to detach.



Do not use abrasive or aggressive products or materials. Clean with damp cotton or paper towels.

Check every 2-3 days

Clean and empty the ash tray being careful with hot ash. The ash must be completely cold for a vacuum cleaner to be used to remove it. Only if the ash is completely cold, you can also use a canister vacuum cleaner suitable for picking up particles of a certain size.

Glass cleaning:

Using a damp cloth and some detergent, wipe the glass until it is completely clean. A spray glass cleaner may be used.

Cleaning stainless steel:

Normally these surfaces do not need to be treated, but if they do, avoid cleaning them with abrasive materials. For surfaces in stainless and satin brushed steel we recommend cleaning with a paper towel or a clean dry cloth moistened with a detergent based on non-ionic surfactants (<5%). A spray glass cleaner may be used.



Avoid contact with skin cleanser and eyes. In case this happens, sprinkle with plenty of water and contact the nearest medical center.

Cleaning of painted parts:

Do not clean the painted parts with wet rags when the unit is in operation or hot to prevent thermal shock to the paint which may cause it to detach. Do not use abrasive or aggressive products or materials. Clean with damp cotton or paper towels. The silicon paints possess technical characteristics that make them resistant to very high temperatures. There is however a physical limit (380 °C - 400 °C) beyond which the paint begins to fade; it may then flake and detach from the steel surface. If this happens, it means that temperatures have been reached that are far above those at which the unit should operate properly.

Lower ash drawer cleaning

Check every 7 days

Clean bottom ash from the fallen debris during operation. You can access the ash pan by loosening the two wing nuts that hold the drawer inspection. Remove the tray, empty and clean the wall and only the corners with a suction device or with dedicated tooling. Then mount the drawer and tighten the two knobs being careful to restore the tightness, very important during operation.



Check every 60-90 days

Inside the compartment where there is the ash tray, there is a second cover, fixed by the cockerels, which gives access to the compartment at the base of the duct dedicated to the flue and the wall of the fume extractor fan. Use a suction device for thorough cleaning of the cabinet. Check the integrity of the seal in ceramic fiber.



Service technician must do it once a year (it is necessary to remove the boiler cover)

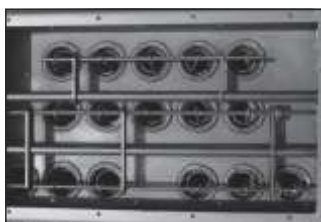
To remove the boiler casing, it is necessary to unscrew 4 screws from the upper side, and then detach and remove the boiler casing

Cleaning of flue tubes

Remove the fan screws and take it out and clean it carefully so as not to damage the fan blades.

Cleaning the heat exchanger

After lifting the cover that is fixed with screws, free the pipes and clean them with a brush as shown in the picture.



Before cleaning, it is necessary to pull out the turbulators from the pipes. The turbulators are removed from the horizontal wedge where they are attached.



After cleaning the upper part of the boiler, put back the cover that is fixed with screws and attached with a ceramic rope, which guarantees perfect sealing and no air ingress. Cleaning is generally done at the end of the season, check all other parts as well.



For your safety, the frequency of cleaning the smoke discharge system must be determined on the basis of how the boiler is used.

In case of failure or inadequate cleaning of the heater may have function problems such as:

- poor combustion
- clogging of grate with accumulation of ash and pellets
- ash deposit and excessive deposits on the heat exchanger resulting in poor performance.

Control of electrical and mechanical parts is carried out by an authorized service.

It is recommended to check the following parts at least once a year:

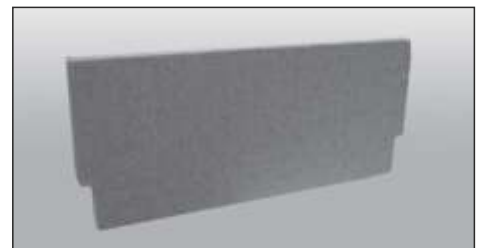
- reduction motor
- flue gas expulsion fan
- flue gas sensor
- el. heater
- safety thermostat
- safety pressure switch
- motherboard (PCB)
- fuses



These operations must be performed by a qualified technician, or the user who will take responsibility in the event of damage during maintenance. Perform this maintenance heater cold and in the absence of electricity. If such maintenance is performed by an authorized service center - that is the cost of the customer.

Cleaning the flame guide (valid for all models):

Inside the boiler, on the upper side, there is a flame guide. When cleaning the turbulator and the inside of the boiler, be sure to remove the flame guide. When removing, pay attention to the handling of the flame guide in order to avoid breakage and damage to it.





When turning off the boiler, never just pull the plug from the power supply, but let the boiler go through the shutdown phase on its own, otherwise problems may arise during the next start-up.

Maintenance and cleaning of the gate and boiler with automatic grate cleaning and without automatic ash removal:



Important! All cleaning of all parts must be carried out with the Boiler completely cold and unplugged to avoid burns and thermal shock. The boiler does not need much maintenance if used with certified quality pellet. The need for maintenance varies depending on the conditions of use (switching on and off repeatedly) and depending on the performance required. It is recommended periodic monitoring of the boiler to check its condition.

Parts	Everyday	Every 2-3 days	Every week	Every 60-90 days	Every 1 year
Brazier			✓		
Cleaning around the ash tray		✓			
Cleaning ashtray		✓			
Cleaning door and glass		✓			
Exchanger (turbulators)	✓				
Cleaning the interior heat exchanger				✓	
Cleaning complete exchanger					✓S
Clean "T" to exhaust				✓	
Cleaning the flue gas outlet					✓S
Door gasket ash				✓S	
Internal parts					✓S
Outlet pipe					✓S
Circulation pump					✓S
Hydraulic components					✓S
Electromechanical components					✓S

✓ by the user

✓S by the authorised qualified technical assistance

In the case of using worse pellets, cleaning at more frequent intervals is recommended.

The compact boiler requires simple and daily cleaning to always ensure smooth and efficient operation. When cleaning the interior parts of the boiler, you can turn on the fan to avoid ash scattering around the room. To activate this option:

1. Press the "Maintenance" on the regulation and then "Manual Boiler Cleaning".
2. Press the "ON" button with the desired fan speed.
3. By using scraper, brush or vacuum cleaner, through the door clean exchanging surfaces.
4. After you finish cleaning, press "back" on regulation to control the boiler back to normal mode and close the combustion chamber door.



Clean the grate using the appropriate tool from the ash and any incrustation which could obstruct the passage of air. In the case of depletion of pellets in the tank may accumulate unburned pellets in the burn pot. Always empty the residuals from the grate before each start. Remember that only a brazier clean properly can ensure ignition and optimal operation of your boiler.



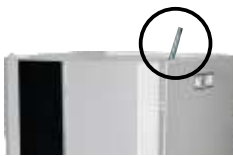
The air holes must always be clean and passable for the boiler to work properly!

Cleaning exchanger - boiler off

Fouling act as insulation and the thicker they are, the lower the heat that is transmitted to the water and to the structure generally. Therefore very important to perform the cleaning of the tube bundle, said exchanger also, to prevent the fouling of the same and prevent clogging and jamming of the cleaning device. Pull and push quickly for about 20 times the lever so that the springs can remove the soot deposited on the pipes.

Boiler maintenance and cleaning:

Lever on the upper side of the boiler



Do not clean the painted parts with wet rags when the unit is in operation or hot to prevent thermal shock to the paint which may cause it to detach.



Do not use abrasive or aggressive products or materials. Clean with damp cotton or paper towels.

Check every 2-3 days

Clean and empty the ash tray being careful with hot ash. The ash must be completely cold for a vacuum cleaner to be used to remove it. Only if the ash is completely cold, you can also use a canister vacuum cleaner suitable for picking up particles of a certain size.

Glass cleaning:

Using a damp cloth and some detergent, wipe the glass until it is completely clean. A spray glass cleaner may be used.

Cleaning stainless steel:

Normally these surfaces do not need to be treated, but if they do, avoid cleaning them with abrasive materials. For surfaces in stainless and satin brushed steel we recommend cleaning with a paper towel or a clean dry cloth moistened with a detergent based on non-ionic surfactants (<5%). A spray glass cleaner may be used.



Avoid contact with skin cleanser and eyes. In case this happens, sprinkle with plenty of water and contact the nearest medical center.

Cleaning of painted parts:

Do not clean the painted parts with wet rags when the unit is in operation or hot to prevent thermal shock to the paint which may cause it to detach. Do not use abrasive or aggressive products or materials. Clean with damp cotton or paper towels. The silicon paints possess technical characteristics that make them resistant to very high temperatures. There is however a physical limit (380 °C - 400 °C) beyond which the paint begins to fade; it may then flake and detach from the steel surface. If this happens, it means that temperatures have been reached that are far above those at which the unit should operate properly.

Lower ash drawer cleaning - Check every 7 days

Clean bottom ash from the fallen debris during operation. You can access the ash pan by loosening the two wing nuts that hold the drawer inspection. Remove the tray, empty and clean the wall and only the corners with a suction device or with dedicated tooling. Then mount the drawer and tighten the two knobs being careful to restore the tightness, very important during operation.

Every 60-90 days

Clean the parts where the fan is located and the space behind the ash box. Avoid cleaning them with abrasive materials. For surfaces in stainless and satin brushed steel we recommend cleaning with a paper towel or a clean dry cloth moistened with a detergent based on non-ionic surfactants (<5%).



When the boiler is not used for a long time

When we do not use the boiler for a long time, it must be disconnected from the electricity supply. To be completely safe, it is recommended to remove the power cable (for the safety of the children, etc.)

When the boiler is not going to be used for a long time, it is recommended to remove all the pellets from the tank because it can collect moisture, and when we want to start it again, there may be difficulties during ignition and irregularities in operation.

Service technician must do it once a year (it is necessary to remove the boiler cover)

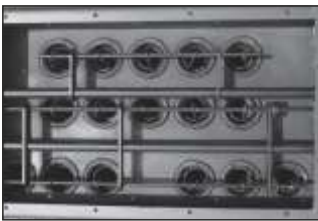
To remove the boiler casing, it is necessary to unscrew 4 screws from the upper side, and then detach and remove the boiler casing

Cleaning of flue tubes

Remove the fan screws and take it out and clean it carefully so as not to damage the fan blades.

Cleaning the heat exchanger

After lifting the cover that is fixed with screws, free the pipes and clean them with a brush as shown in the picture.



Before cleaning, it is necessary to pull out the turbulators from the pipes. The turbulators are removed from the horizontal wedge where they are attached.



After cleaning the upper part of the boiler, put back the cover that is fixed with screws and attached with a ceramic rope, which guarantees perfect sealing and no air ingress. Cleaning is generally done at the end of the season, check all other parts as well.



For your safety, the frequency of cleaning the smoke discharge system must be determined on the basis of how the boiler is used.

In case of failure or inadequate cleaning of the heater may have function problems such as:

- poor combustion
- clogging of grate with accumulation of ash and pellets
- ash deposit and excessive deposits on the heat exchanger resulting in poor performance.

Control of electrical and mechanical parts is carried out by an authorized service.

It is recommended to check the following parts at least once a year:

- reduction motor
- flue gas expulsion fan
- flue gas sensor
- el. heater
- safety thermostat
- safety pressure switch
- motherboard (PCB)
- fuses



These operations must be performed by a qualified technician, or the user who will take responsibility in the event of damage during maintenance. Perform this maintenance heater cold and in the absence of electricity. If such maintenance is performed by an authorized service center - that is the cost of the customer.

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HEATING TECHNIQUE



Company assumes no responsibility for possible inaccuracies in this book originated typographical errors or rewriting, all the pictures and diagrams are principal and it is necessary to adjust each actual situation on the field, in any case the company reserves the right to enter their own products such modifications as considered necessary.

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