Centrometal
HEATING TECHNIQUE

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ENG

TECHNICAL INSTRUCTIONS

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

CE

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

You can find the latest technical instructions for PelTec II Lambda by scanning the QR code or at the web address:

https://www.centrometal.hr/en/portfolio/peltec-ii-lambda-eng/

PelTec II Lambda 12-48

TECHNICAL INFORMATION

Model identifier (TYPE):			**PelTec II Lambda 12**	**PelTec II Lambda 18**	**PelTec II Lambda 24**	**PelTec II Lambda 36**	**PelTec II Lambda 48**
Useful heat output at rated heat output - P_n		(kW)	12	18	24	36	48
Useful heat output at 30 % of rated heat output - P_p		(kW)	3.6	5.4	7.2	10.8	14.4
Useful efficiency at rated heat output (Net calorific value "NCVar")		(%)	93.8	93.9	94.1	92.8	91.5
Useful efficiency at 30 % of rated heat output (Net calorific value "NCVar")		(%)	90.7	92.1	93.5	94.2	94.9
Useful efficiency at rated heat output (Gross calorific value "GCVar") - η_n		(%)	86.4	86.5	86.7	85.5	84.3
Useful efficiency at 30 % of rated heat output (Gross calorific value "GCVar") - η_p		(%)	83.4	84.9	86.1	86.8	87.4
Heat output range		(kW)	3.6-12	5.4-18	7.2-24	10.8-36	14.4-48
Boiler class			5				
Required chimney underpressure		(mbar)	0,02				
Water amount in boiler		(l)	78	76	100	108	135
Exhaust gas temperature at nominal heat output		(°C)	130				
Exhaust gas temperature at minimal heat output		(°C)	100				
Exhaust mass flow at nominal heat output		(g/s)	15.16	18.97	22.78	35.27	47.75
Exhaust mass flow at minimal heat output		(g/s)	5.82	6.91	8.0	13.1	18.05
Operating (combustion) time		(h)	-				
Min. inlet water tem. at the boiler supply water connection		(°C)	-				
Setting range for temperature controller		(°C)	65-90				
Minimum return flow temperature		(°C)	> 0°C				
Heat loss when the boiler is OFF		(W)	-				
Boiler resistance on water side at nominal output ***		mbar	0.025	0.055	0.095	0.205	0.37
Fuel size		(mm)	Ø6 x 50				
Fuel loading chamber capacity		(l)	0.96	0.96	1.59	2.56	2.56
Fuel loading chamber dimensions		(mm)	465x300x300	650x300x300	650x300x300	620x385x385	770x385x385
Combustion chamber volume		(l)	41.85	58.5	58.5	91.90	114.13
Combustion chamber type			underpressure				
Pellet tank volume		(l)	340	340	340	340	340
Ash box volume (left/right)		(l)	9.9 / -	6.5 / 9.9	9.9 / 9.9	11.6 / 17.7	13 / 19.6
Auxiliray power requirements at Q_N		(W)	1050	1050	1050	1100	1100
Auxiliray power requirements at Q_{min}		(W)	-				
Supply voltage		(V~)	230				
Frequency		(Hz)	50				
Boiler body dimensions	Length (A)	(mm)	1100	1090	1050	1150	1150
	Width (B)	(mm)	1210	1435	1380	1465	1465
	Height (C)	(mm)	1560	1560	1560	1560	1560
Total mass - (boiler with tank and screw feeder)		(kg)	328	349	402	455	478
Max. operating overpressure		(bar)	2.5				
Test pressure		(bar)	5				
Max. operating temperature		(°C)	90				
Flue gas tube - external diameter		(mm)	130	130	130	150	150
Dimension D*/D**		(mm)	1515 / 1230	1040 / 755	1140 / 850	1155 / 835	1305 / 935
Dimension E		(mm)	125	120	120	125	125
Dimension F		(mm)	525	525	520	520	670
Boiler connections	Main/return flow (thread)	(G)	5/4"	5/4"	5/4"	5/4"	5/4"
	Filling/drainage (thread)	(G)	1/2"				
Heating appliance working			with fan				
Heating appliance working			under non-condensing conditions				
Stoking mode			automatic				
It is recommended that the boiler be operated with a hot water storage tank of a volume of at least		(l)	240	360	480	720	960
Condensing boiler			no				
Solid fuel cogeneration boiler			no				
Combination boiler			no				
Preferred fuel			compressed wood in the form of pellets: **A1** (EN ISO 177225 - 2)				
Seasonal space heating energy efficiency - η_S		(%)	79	80	82	83	83
Seasonal space heating emissions for preferred fuel ****	PM	mg/m³ (10% O2)	19	21	23	22	21
	OGC	mg/m³ (10% O2)	5	3	2	2	2
	CO	mg/m³ (10% O2)	167	117	67	90	113
	NOx	mg/m³ (10% O2)	138	138	138	139	141
Auxiliary electricity consumption	At rated heat output - el_{max}	(kW)	0.055	0.066	0.076	0.086	0.096
	At 30 % of rated heat output - el_{min}	(kW)	0.039	0.039	0.039	0.043	0.046
	Of incorporated secondary emission abatement equipment	(kW)	Not applicable				
	In standby mode - P_{SB}	(kW)	0.009				
Boiler category			1				

* possible way of installing the fan (output is directed up)
** possible way of installing the fan (output is directed sideways) *** dT=20°C
**** PM = particulate matter, OGC = organic gaseous compounds, CO = carbon monoxide, NOx = nitrogen oxides
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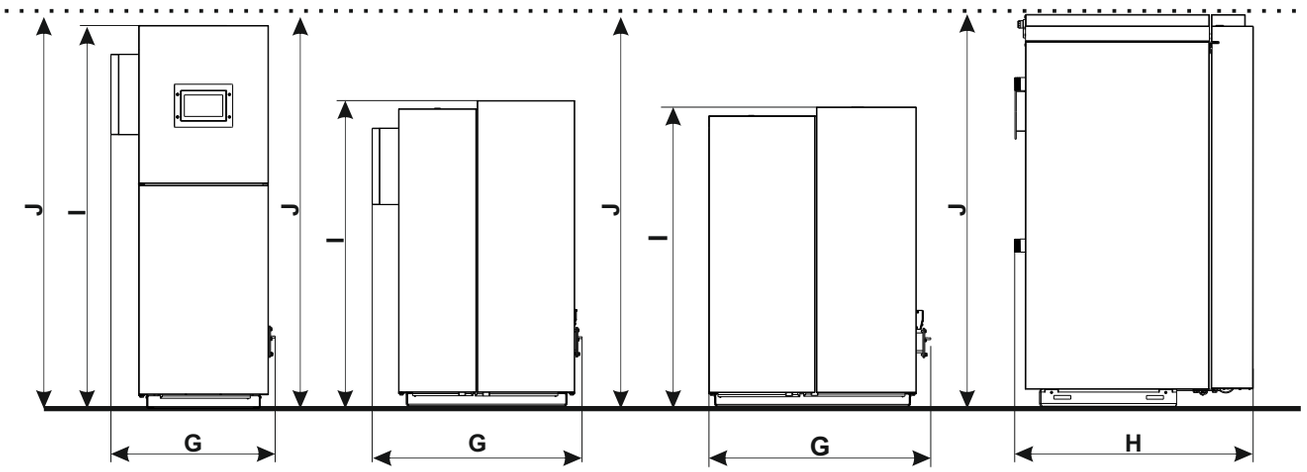
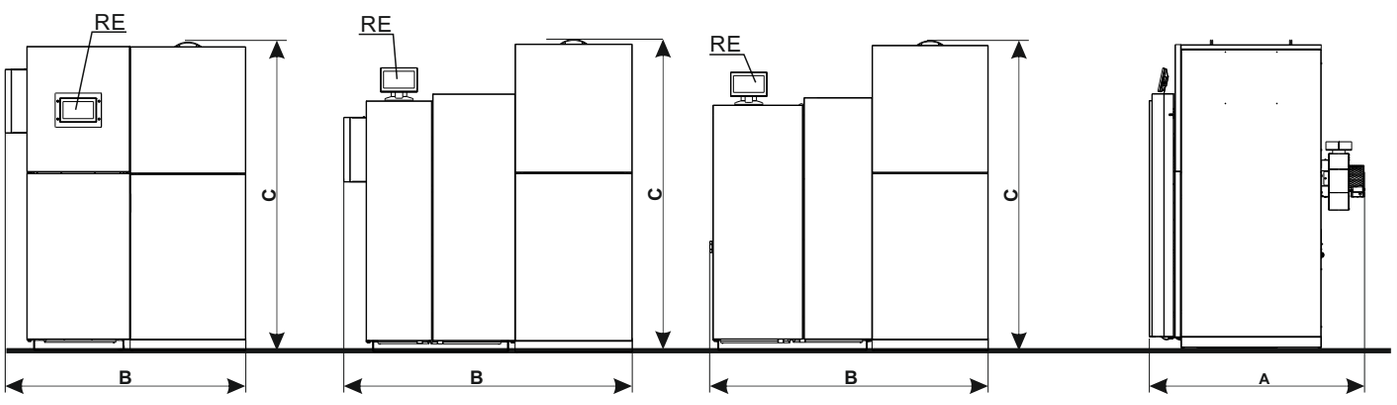
Dimensions of the boiler to enter the room	12 kW	18 kW	24 kW	36 kW	48 kW
Width (G)	660	880	855	945	945
Depth (H)	760	760	740	840	840
Height (I)	1560	1290	1270	1270	1420
Min. room height for turbulators removing (J)	1900	1700	1700	1700	2000



12 kW 18 kW 24-48 kW 12-48 kW

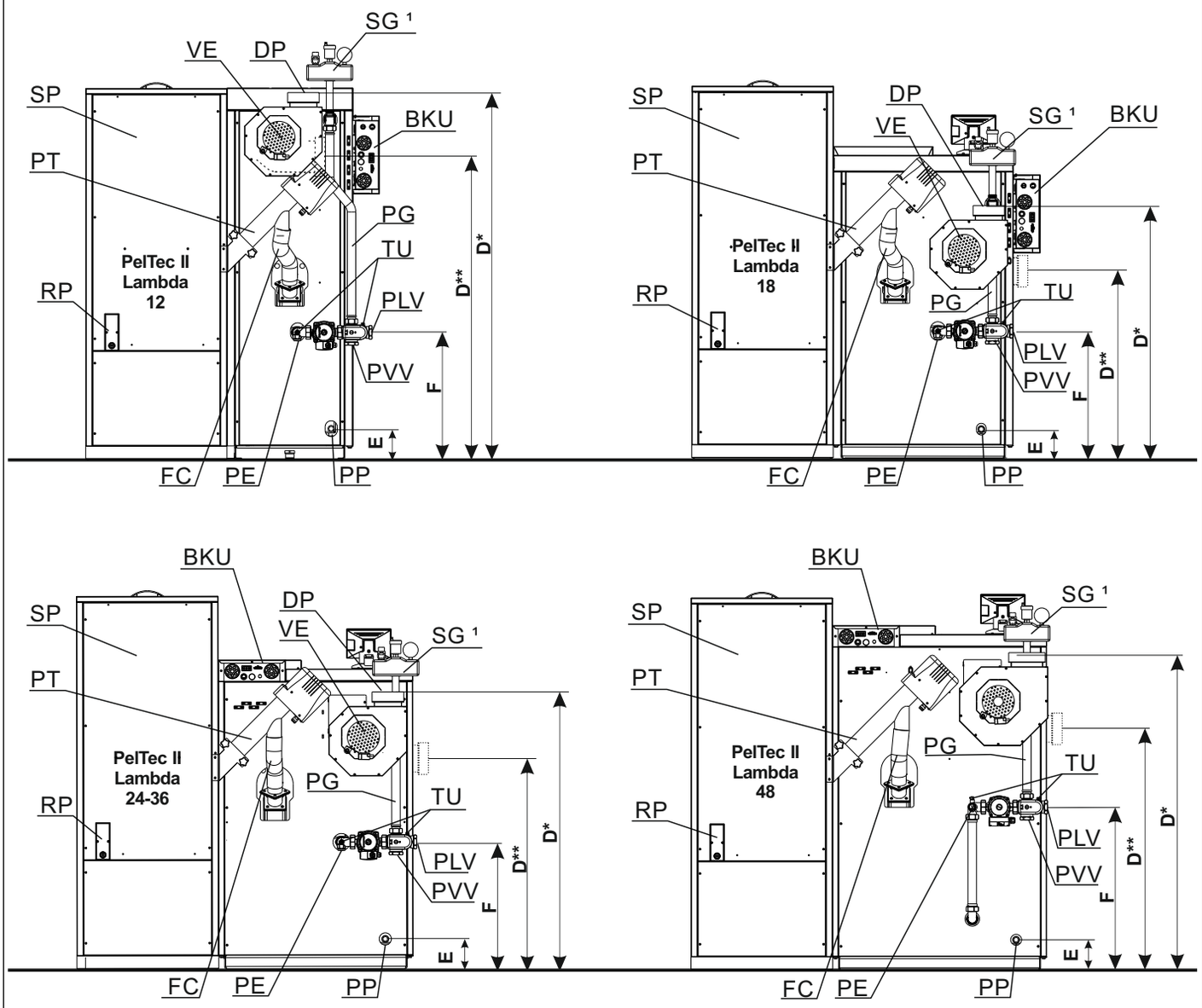
BKU - Boiler control unit box
DP - Flue gas tube
FC - Flexible PVC tube
PE - Connection for expansion vessel
PG - Pump group
PLV - Boiler main flow
PP - Charge / Discharge
PT - Pellet feeder (transporter)
PVV - Boiler return flow
RE - Boiler control unit screen (7")
RP - Pellet level sensor
SG¹ - Safety airvent group (not included in delivery)
SP - Pellet tank
TU - Temperature sensor tube (probe) (return and main flow)
VE - Fan (fan output can be mounted in any directions)

Front view **Side view**



12kW **18kW** **24-48kW** **12-48kW**

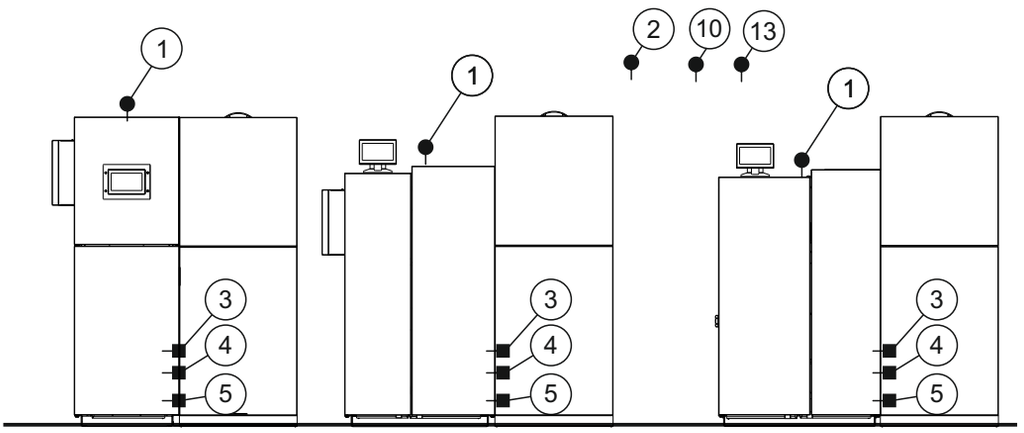
Back view - PelTec II Lambda 12-48

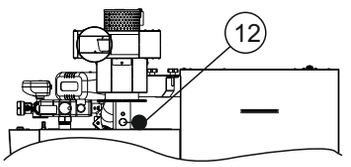


* possible way of installing the fan (output is directed up)
** possible way of installing the fan (output is directed sideways)

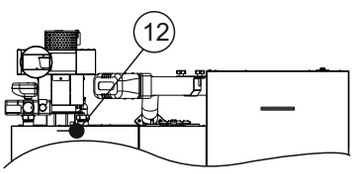
¹ not included in delivery

1 - Boiler sensor (NTC 5k)
2 - Heating circuit K1/K2 temperature sensor / accumulation (buffer) tank temperature sensor / Hydraulic crossover temperature sensor (NTC 5k)
3 - Pressure switch
4 - Photocell
5 - Electric heater
6 - Flue gas temperature sensor (Pt 1000)
7 - Fan speed sensor
8 - PVC tube bimetal sensor
9 - Pellet level in the tank
10 - Heating circuit K1/K2 temperature sensor / accumulation (buffer) tank temperature sensor / Hydraulic crossover temperature sensor (NTC 5k)
11 - Return flow sensor (NTC 5k)
12 - Lambda probe
13 - Outdoor temperature sensor (NTC 5k)
14 - Main flow sensor (NTC 5k)

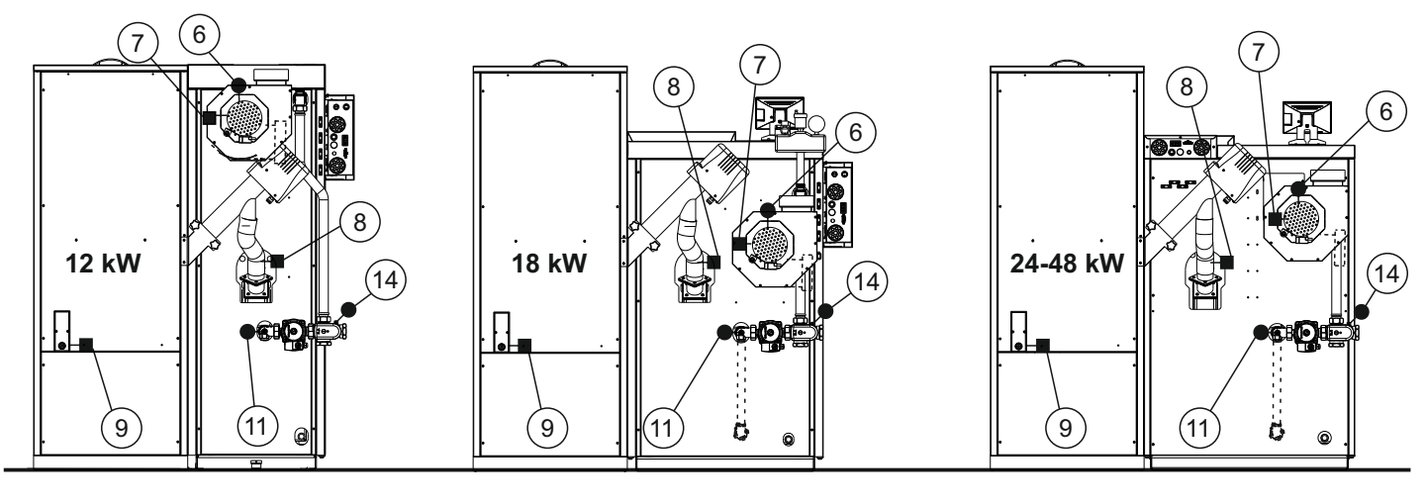




PelTec II Lambda 12 kW



PelTec II Lambda 18-48 kW



ADDITIONAL EQUIPMENT

CAL - alarm box (speaker/ LED)

CM2K module for regulation 2+ heating circuits

CMNET module for boiler cascade

Pelet suction system

Increasing volume of pellet tank (+77kg, h=300mm) (12-48 kW)

Screw refill (CPSP-BP 800 - System for the pellet supply by the screw transporter from 800 lit. pellet tank)

Room corrector (CSK-Touch)

Room corrector (CSK)

Rotary valve (12 - 48 kW)

1.0. INTRODUCTION

The **PelTec II Lambda** has a modern construction and design and is made out of the controlled materials of high quality, welded with most modern technology and is approved and tested under EN 303-5 norm and fulfil all special request for the connection on the installation of a central heating system.

1.1. BOILER DESCRIPTION

Steel hot water boiler are engineered for wood pellet firing. In the boiler is installed the burner for wood pellet firing with the automatic firing and automatic self-cleaning function which enables the reliable operation also with the low quality wood pellets. The function of the automatic cleaning flue gas tubes provides the unifying exchange of the heat and high and unifying level of boiler efficiency. Digital boiler control unit in a basic construction offers also the possibility of control with the lambda probe or level control of the wood pellets in the pellet tank. The pellet tank is the integral part of the boiler. The boiler is delivered in pieces due to the easier transport into the boiler room.

1.2. SAFETY PRECAUTIONS

The boiler and related accessories are state of the art and meet all applicable safety regulations. The control unit, wiring chamber, el. heater, safety cut-out STB thermostat, fan, grid cleaning mechanism, flue gas tubes cleaning mechanism and pellet supply mechanism are integrated into the **PelTec II Lambda**. They are operate at a voltage of 230 V AC. Improper installation or repair can pose the danger of life-threatening electric shock. Installation may be performed only by appropriately qualified technicians.

Caution symbols:
Please take careful note of the following symbols in this technical instructions.

	**This symbol indicates measures for protection against accidents and warning for the user and / or exposed persons.**

1.3. IMPORTANT INFORMATIONS

All local regulations, including those referring to national and European standards need to be complied with when installing the appliance. The boiler must not be modified unless using the tested original accessories we provide or if the work is undertaken by our Customer Service. Only fit original spare parts. These can be obtained from your customer service partner or directly from ourselves. European standards need to be complied with when installing the appliance. Regular care and cleaning of the appliance, flue gas outlets, connecting piece and flue.

CAUTION:

The flue may block if the boiler is heated again after a long period of it not being used. Before starting the boiler, have the flue checked by a specialist (chimney sweep). Ensure sufficient supply of fresh air in the installation room when heating. The air must be replaced at least 0.8 times an hour through constant and reliable room venting. Fresh air may have to be provided from outside if the windows and doors in the room where the boiler is installed are well sealed or if this room contains other equipment, such as extractor hoods, clothes dryer, fan etc.

1.4. STATUS OF DELIVERY

Equipment is delivered seperately:

1. Boiler with cover and thermal insulation.

With inbuilt and pre-wired:

- color touch screen display (7") of boiler control unit (only pre-wired except for PelTec II Lambda 12 which is factory installed).
- boiler temperature sensor - NTC 5K - PVC l=1000 (12041).
- flue gas temperature sensor - PT 1000 - Teflon l=1700 (62330).
- lambda probe.

Boiler control unit screen (7") - touch-sensitive color display (supplied in the boiler ash box, except for the PelTec II Lambda 12 where it is factory installed).

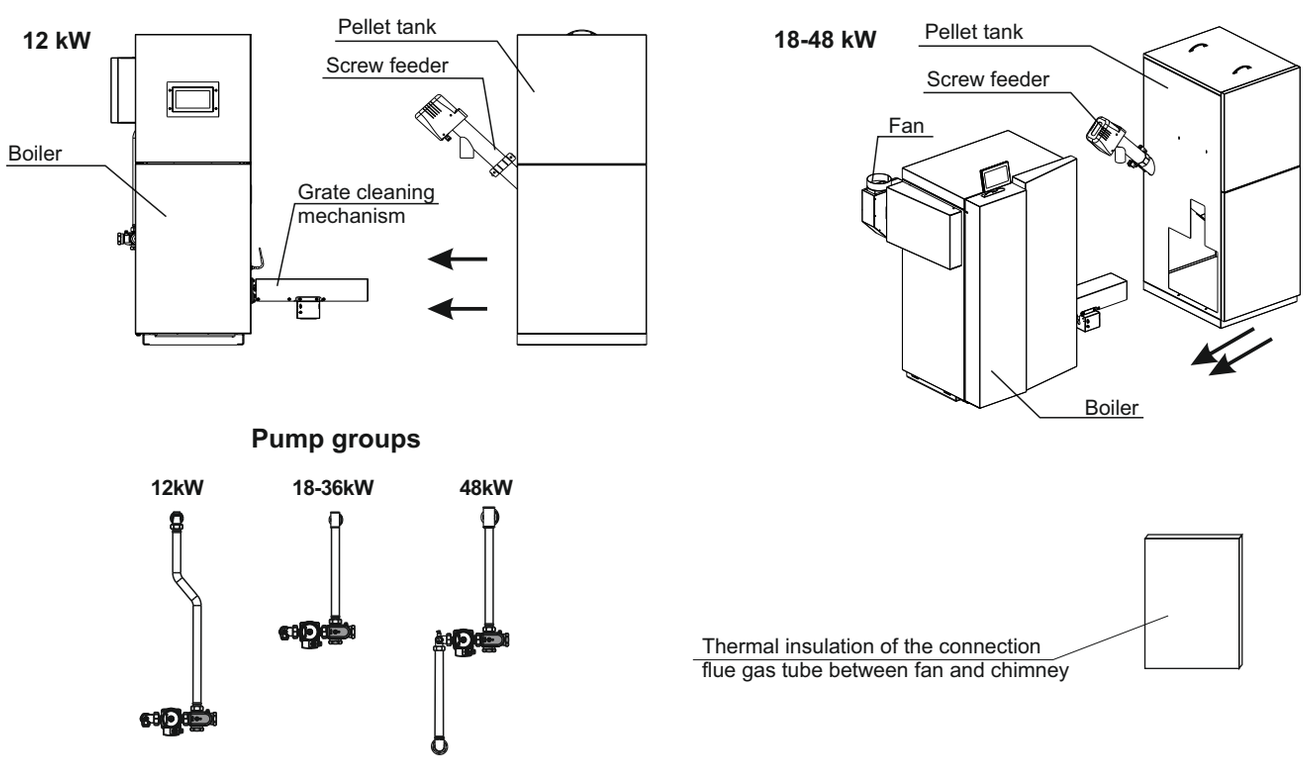
Display holder (supplied in the boiler ash box, except for PelTec II Lambda 12 where it is factory installed).

Additional parts, sensors and connectors in basic delivery:

- 1 x return flow temperature sensor - NTC 5K - PVC l=2000 (26226).
- 1 x (Heating circuit K1/K2 temperature sensor / Acc. (buffer) tank temperature sensor / Hydraulic crossover temperature sensor) - NTC 5K - PVC l=2000 (26226).
- 1 x (Heating circuit K1/K2 temperature sensor / Acc. (buffer) tank temperature sensor / Hydraulic crossover temperature sensor) - NTC 5K - PVC l=2000 (32685)
- 1 x outdoor temperature sensor - NTC 5K (31428).

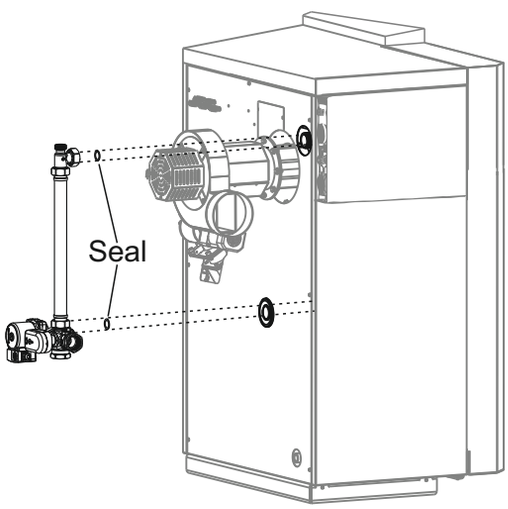
2. Pellet tank in a cardboard box (the parts need to be mounted, see instructions for mounting the pellet tank).
3. Feeder screw with a flexible PVC tube (should be placed in the pellet tank).
4. Grate cleaning mechanism (requires installation on the boiler).
5. Fan (requires installation on the boiler).
6. Pump group (Tubes with 4-way mixing valve with actuator and circulation pump (need to be mounted on boiler).
7. Thermal insulation of the connection flue gas tube between fan and chimne.
8. Cleaning tools: scraper, wooden cleaning brush, wire cleaning brush.

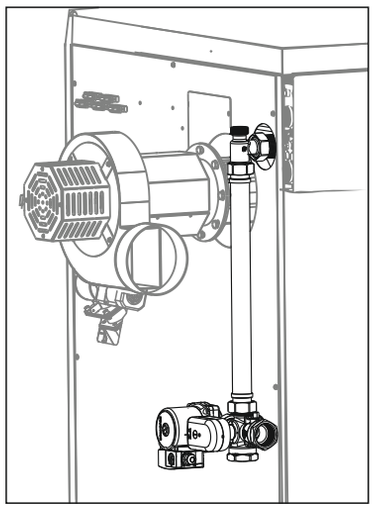
Figure 1. Status of delivery

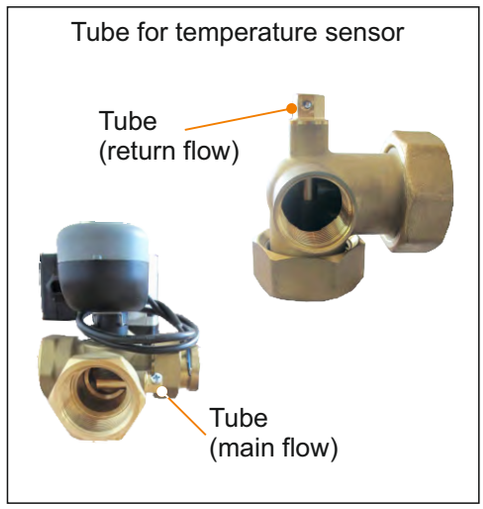


Pump group

- mount pump group with 4-way mixing valve to the boiler so that the T-piece is in the upper side. On the upper connector of the T-piece incorporate safety ventilation group. On the back of boiler were prepared two holenders for mounting connection tubes (connection tubes with 4-way mixing valve). Be sure to use the seal for holenders. Set return temperature sensor in the socket for the sensor between the 4-way mixing valve and the boiler. It is obligatory using the included thermal paste. Plug the connector of the PWM cable and the power cable (230 V) of the pump onto the pump. Connect the connector of the power cable (230 V) to the motor drive of the 4-way mixing valve.

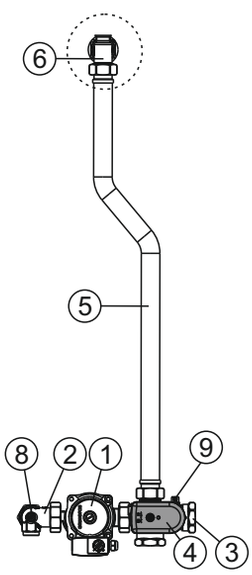


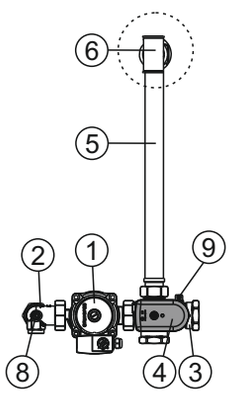


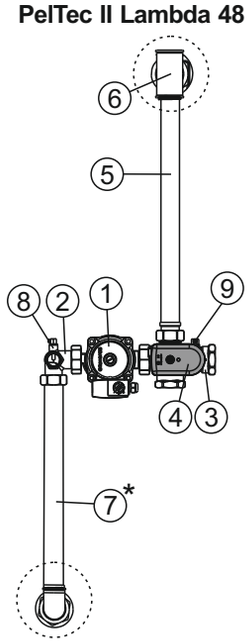


Example of installation pump group to the boiler PelTec II Lambda 18-36

Pump groups		
PelTec II Lambda 12	**PelTec II Lambda 18-36**	**PelTec II Lambda 48**







LEGEND:

1. - Boiler pump P(PWM)
2. - Angled T-piece (connects to the boiler return flow)
3. - 4-way mixing valve
4. - Motor actuator
5. - Connecting pipe
6. - T-piece (connects to the boiler main flow)
7. - Lower pipe *
8. - Return flow sensor tube
9. - Main flow sensor tube

*Only PelTec II Lambda 48

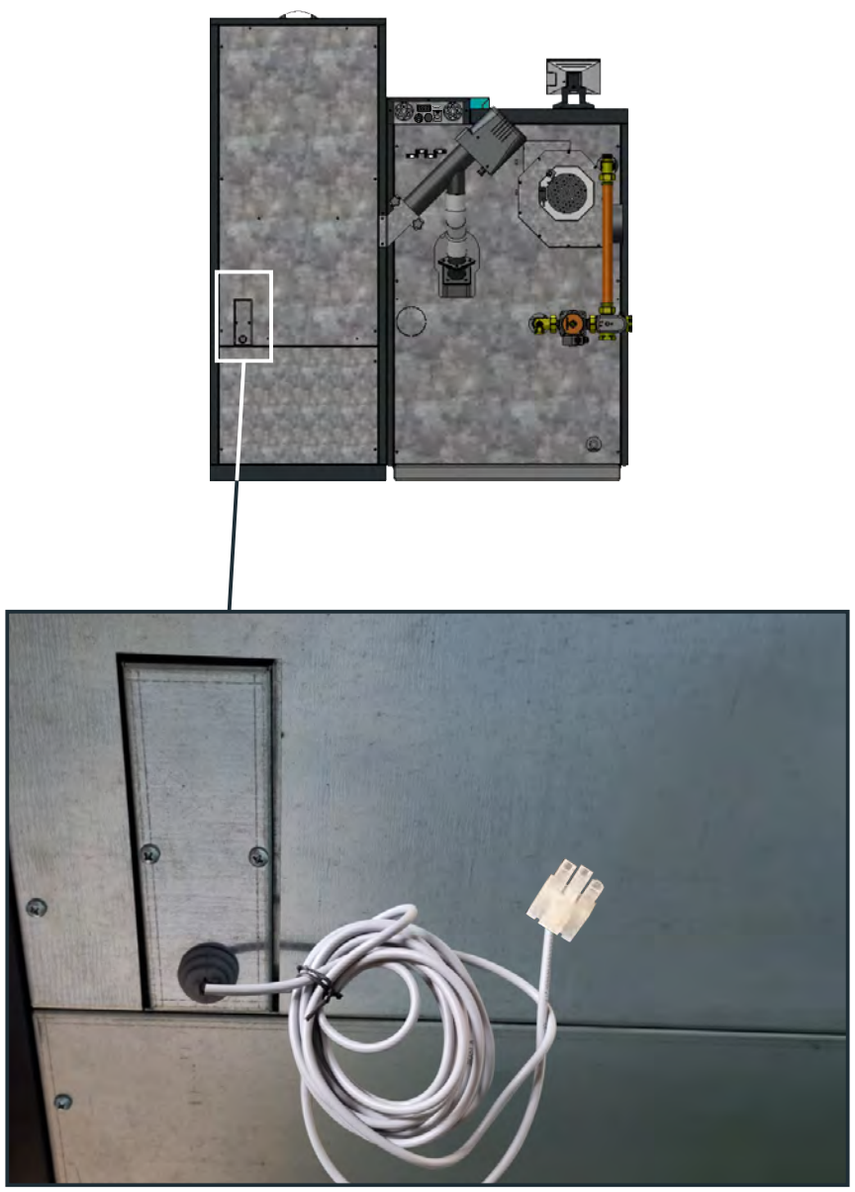
NOTE: check the tightness of connection tubes and tighten them as necessary.

Pellet tank

- mount pellet tank according installation manual for mounting pellet tank. Set up feeder screw (pellet transporter) in the pellet tank. Place the pellet tank to the boiler and set PVC tube to feeder screw (pellet transporter) and tube supply on the boiler. Set up the PVC tube so as to allow the smooth falling pellet into the burner. If necessary, cut the PVC tube to the required length. Plug-in the power connector on the back of the boiler control unit box.

Pellet level sensor in the pellet tank

- The pellet level sensor for the pellet level in the tank comes factory installed on the back of the pellet tank with a factory installed cable and connector to connect to the rear of the boiler control unit box. After the tank is mounted and placed in the place next to the boiler, it is necessary to connect the cable with the connector into the specific position on the back of the boiler control unit box (see figure 4).

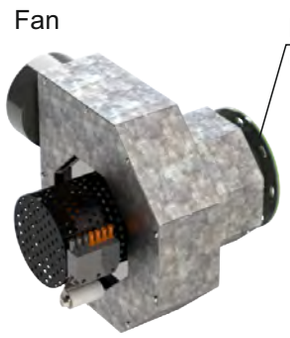


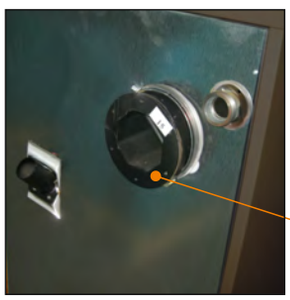
1.5. MOUNTING PARTS

For ease of handling, transport and import of boiler, PelTec II Lambda is delivered in parts that need be mounted on the boiler when the boiler is in the boiler room. These parts need to be installed on the boiler:

Fan

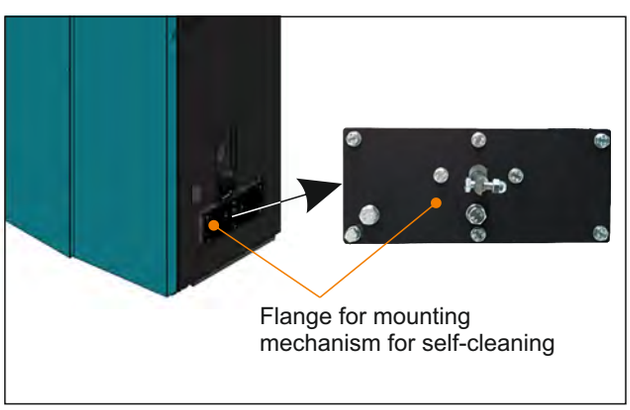
- mount on the back of boiler, is obligatory to use the flange gaskets fan, fastened using bolts and nuts. The electrical connector for the fan and RPM sensor is connected directly to the boiler control unit box. Fan output can be mounted in any directions.

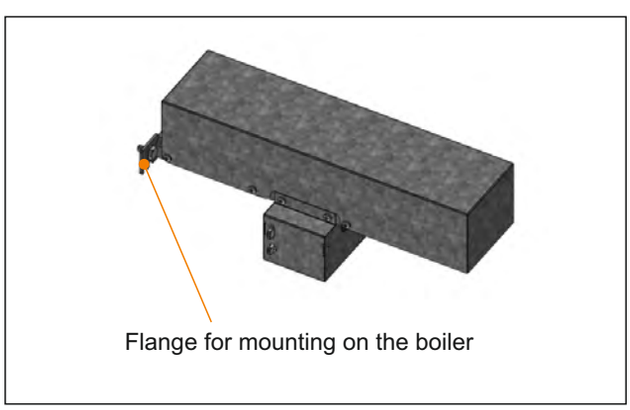




Mechanism for grating cleaning

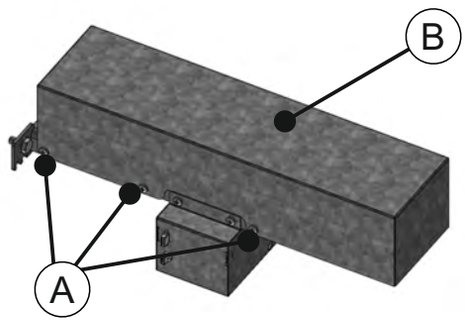
- mount on the right side of the boiler (in this side is pellet tank), must be fastened using two M8 bolts and nuts. After assembly, it is necessary to attach the lever burner grid with gear motor trail. Plug-in two cables with connectors (motor and microswitches).

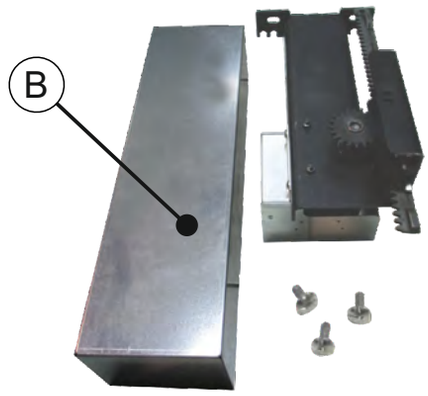




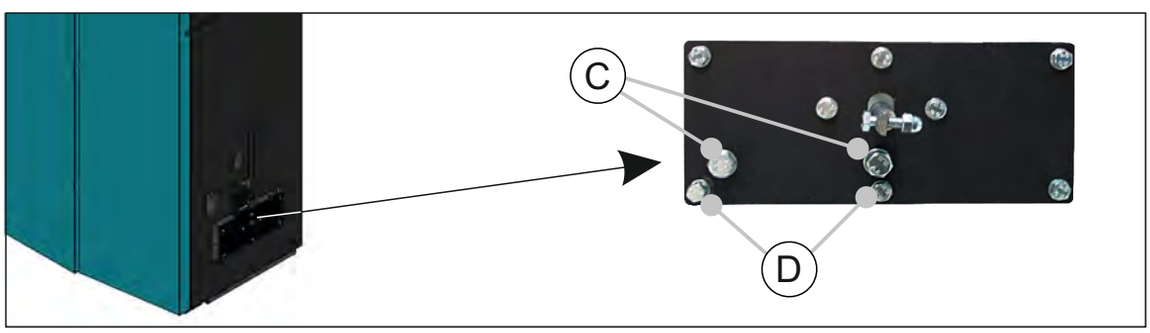
1.5.1. MOUNTING MECHANISM FOR GRATE CLEANING

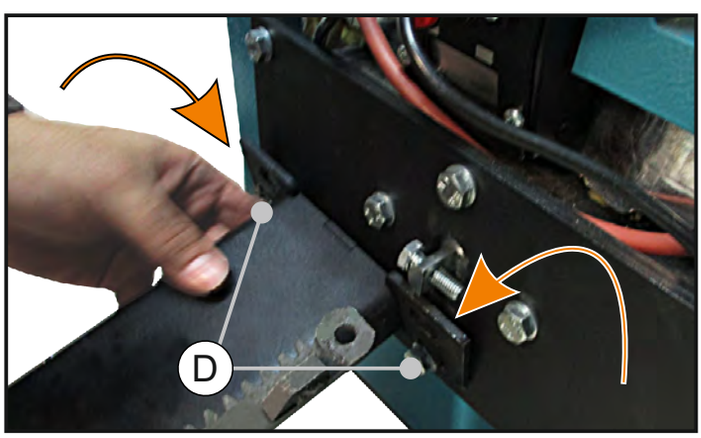
1. Remove the three screws (A), from cover (B) of the grate cleaning mechanism and remove cover carefully.

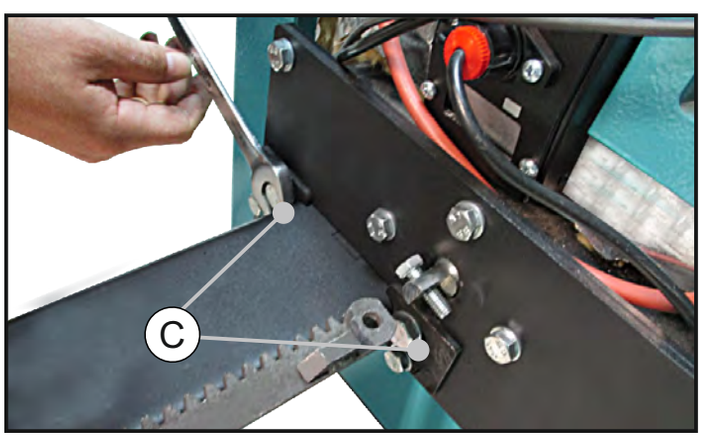


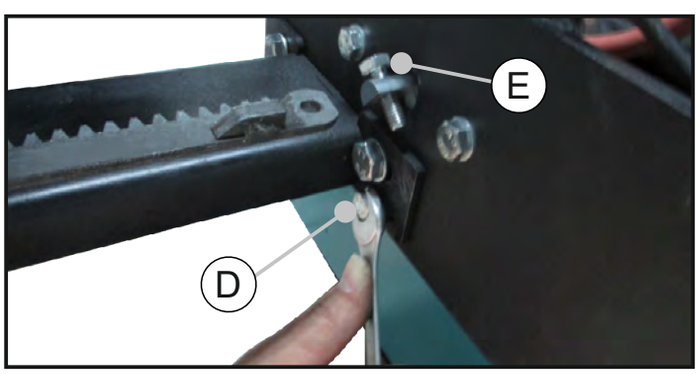


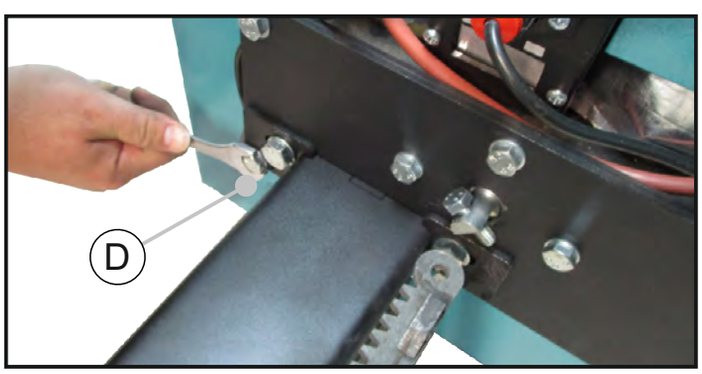
2. Remove the two screws (C) and just slightly loosen screws (D) as shown in picture below. Carefully attach grate cleaning mechanism to loose screws (D), then fasten with screws (C) and tighten the screws (D).



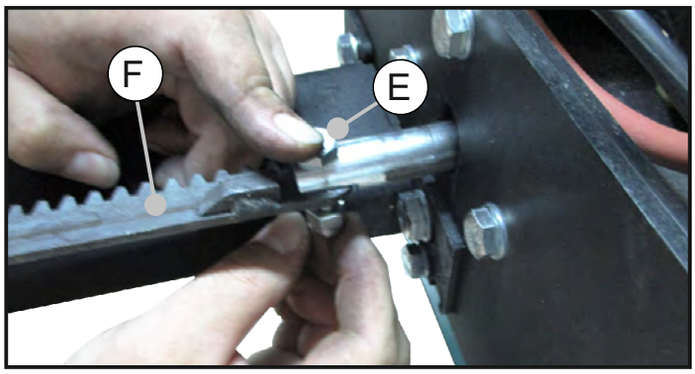


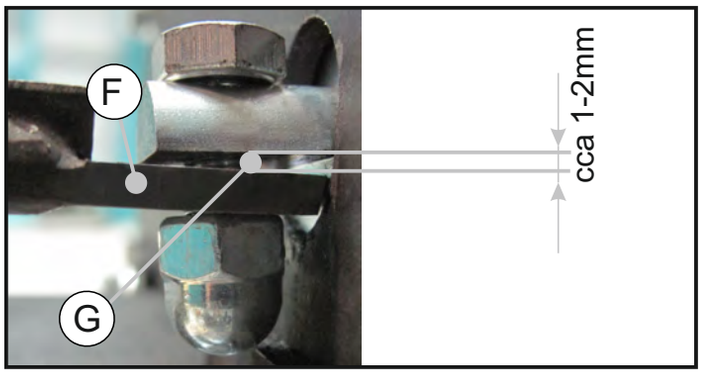




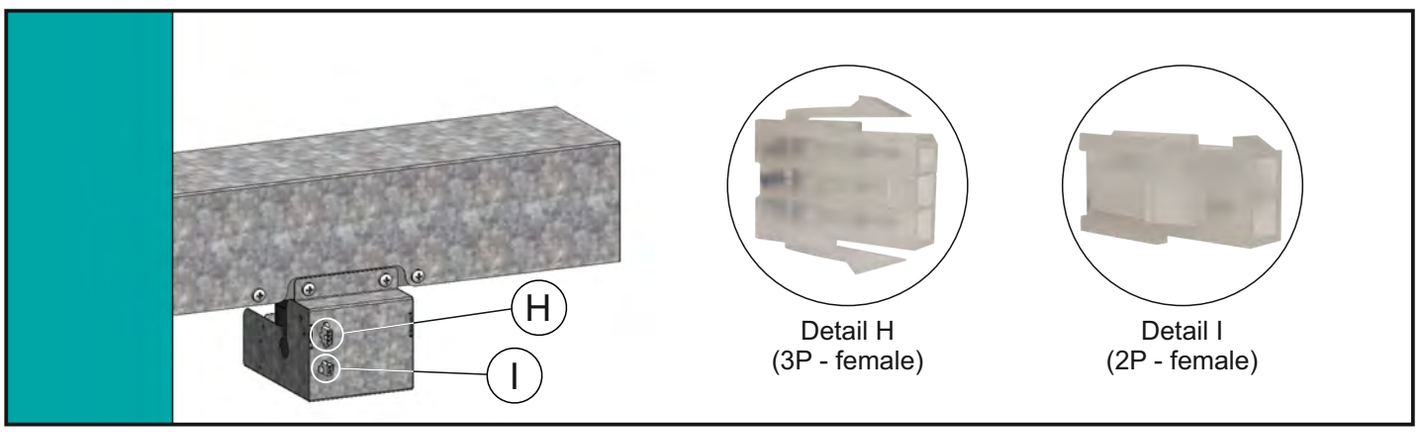


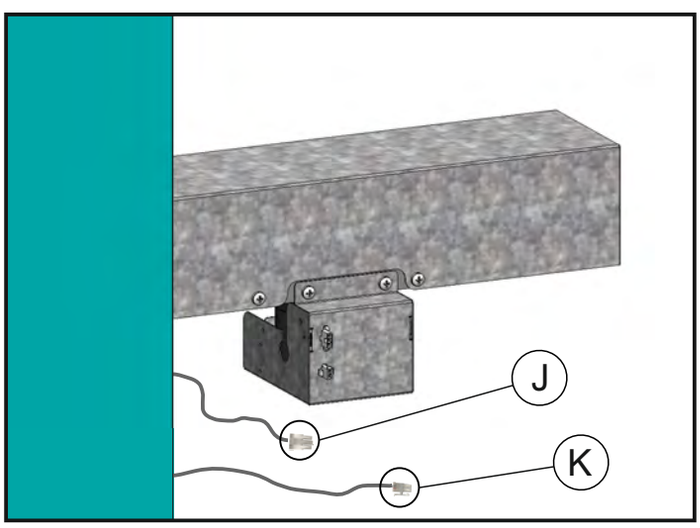
3. Set the screw (E) into the jagged track (F), set the nut on the screw and tighten. Free space (G) is required for the proper functioning of the mechanism.

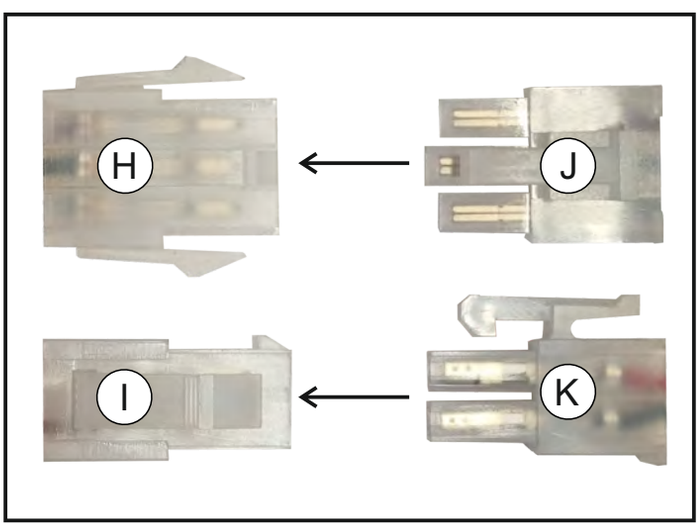




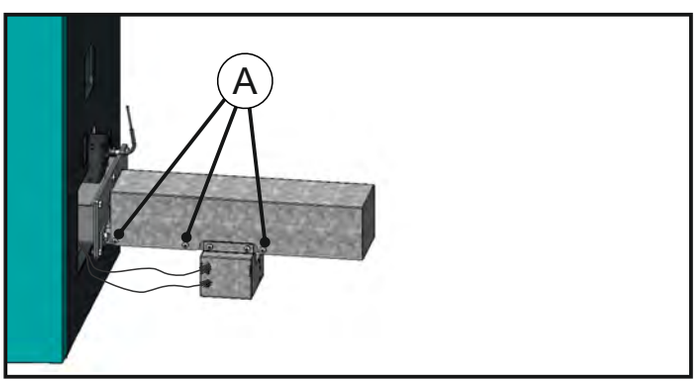
4. Connect the connectors (H and I with J and K) so they have a good contact.







5. Carefully set the cover and tighten with the screws (A).



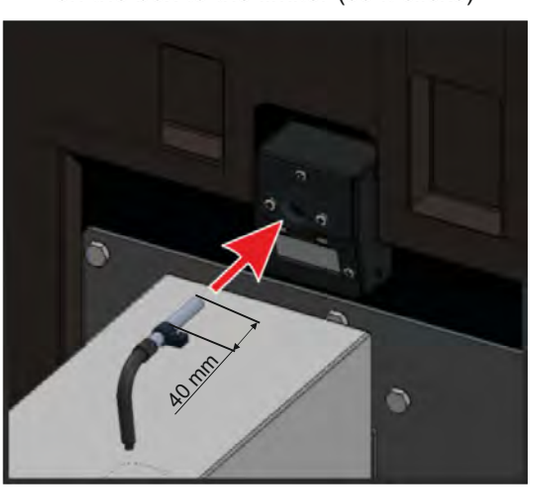
1.5.2. SETTING PHOTOCELL TO THE WORK POSITION

Before first startup, be sure to set the photocell to the position as on the figures below, otherwise the boiler will not work properly!

The photocell should not be set too deep or too shallow in the box. Because of this, there is an limiter by which correct photocell dept is set. Check if the limiter is adjusted aacording the photos below.

Factory installation position and distance photocell flange and limiter, ready for installtion.

Carefully install photocell into flange on the box to the limiter (so it clicks)



Correctly installed photocell
Boiler ready for operation

1.6. SAFETY ELEMENTS

Boiler have a few safety elements:

- **Bimetal thermostat -** built on the burner pellet feeding tube. If the bimetal set temperature (80°C) is exceeded, pellet feeding is stopped, the boiler stops working and the E8, E8-1 or E8-2 and "Pellet supply tube temperature too high" are displayed on the boiler control unit screen.
- **Pressure switch** - if there is no underpressure in the boiler (eg. chimney is not passable, any boiler door or cleaning opening is open or the PVC pellet supply pipe is punctured), the controller displayed E12 and "Safety pressure switch", and the boiler stops working.
- **Photocell -** in case there is no flame (photocell does not see flame) in the ignition phase at the set time, the controller displays E18 and "No flame in ignition stage" and stops the boiler, if the flame disappears in the ignition phase, the control displays E23 and "Flame disappeared in ignition stage" and stops the operation of the boiler, if the flame disappears in the stabilization phases, the controller displays E24 and "Flame disappeared stabilization stage" and stops the boiler, and if the flame disappears in the phases of boiler operation, the controller displays E19 and "Flame disappeared working phase" and stops the boiler operation.
- **Controller** has a built in protective function which protects the boiler against overheating. If temperature in the boiler exceeds 93 °C, the all pump turns on and works until temperature in the boiler falls below 93 °C.
- **The fan** has a built-in RPM counter and, if regulation is informed that the fan does not operate in accordance with the requirement interrupts the process display error E13 and "Fan error".
- **The grate cleaning mechanism** has two built-in microswitches that monitor the position of the grate. If the grate is not in the required position at a certain moment, the controller receives this information and interrupts the operation process, and E21 and "Error grate cleaner" will appear on the display.
- **Flue gas connection** have in-built sensor for flue gas temperature meassuring. If flue gas tube temperature is over 300 °C, controller interrupt proces and display information E4 and "Flue gas sensor error".
- **STB thermostat -** When temperature in the boiler exceeds 110 °C (+0 °C / - 9 °C), power supply is turned off by the safety thermostat (STB).
- **Thermal protection** (built in coils of the fan electric motor at the burner and the screw feeder motor, flue pipe cleaning, grate cleaning) protects them against overheating caused by failure or locking.
- **Flexible PVC tube** connecting the pellet burner and pellet tank is made of plastic material reinforced with metal wire which, in case of back flame from the burner to the tank, melts and prevents flame to penetrate to the pellet tank.

1.7. FUEL

Only wood pellets are used as fuel in PelTec II Lambda. Wooden pellets are bio-fuel made of wooden wastes. Pellets can be packed in different packaging: in bags (15 kg or 1000 kg), or as bulk in large (underground) tanks (4 - 15 m^3) or in basement spaces. Pellets used in pellet boiler must be in accordance with following norms: ENplusA1, DINplus, ONorm-M-7135 or DIN 51731.

Recommended properties of pellets are following:

- heating value >= **5 kWh/kg** (18 MJ/kg)
- diameter <= **6 mm**
- max. lenght = **50 mm**
- max. moisture content <= **12 %**
- max. dust content <= **1,5 %.**

2.0. BOILER POSITIONING AND ASSEMBLY

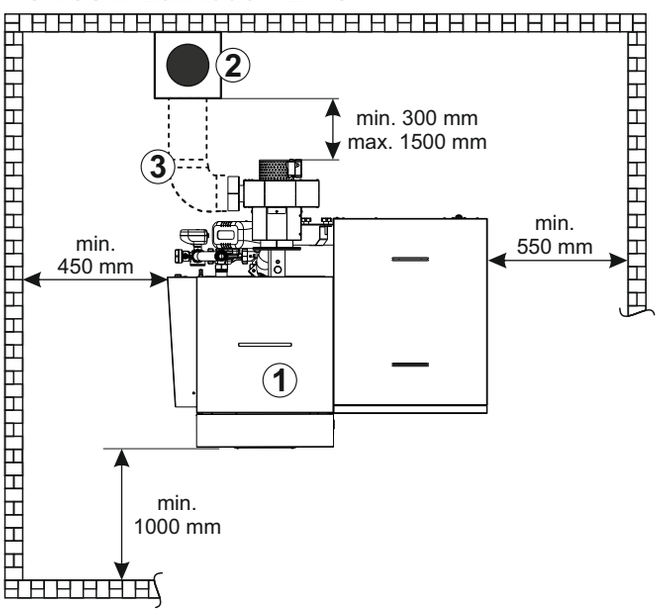
Boiler positioning, assembly and building in must be performed by a qualified person. We recommend that boiler is placed on a concrete base with height of 50 to 100 mm above the floor. Boiler room must be frost-proof and well ventilated. Boiler has to be positioned so that it can be properly connected to the chimney (see Figure 2a) and simultaneously, enabling tending of boiler and additional equipment, control during operation, cleaning and maintenance.

WARNING!
Flammable items must not be placed on the boiler and within the minimum distances shown in Figure 2a and 2b.

2.1. MINIMUM DISTANCE FROM THE ROOM WALLS

Figure 2a. Minimum distance from the room walls for PelTec II Lambda

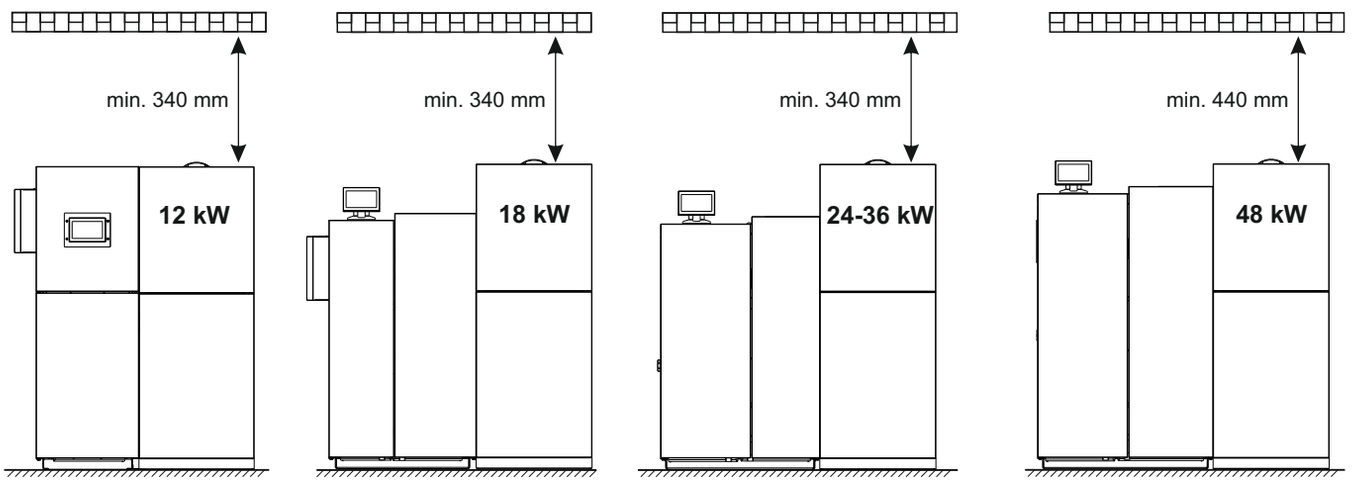
PelTec II Lambda 12-48



① - Boiler PelTec II Lambda
② - Chimney
③ - Flue gas tube (Chimney connection; must be insulated)

Provide minimum distance from the boiler room ceiling and walls for undisturbed cleaning.

Figure 2b. Minimum distance from the boiler room ceiling.



2.2. OPENING FOR FRESH AIR (FRESH AIR SUPPLY)

Each boiler room **must be equipped with an opening** for supply of fresh air which is dimensioned in accordance with boiler output (minimum opening area according to the below shown equation). Such opening must be protected with a net or grate. All installation works have to be performed in accordance with valid national and European standards. Boiler must not operate in flammable and explosive environment.

$$A = 6{,}02 \times Q$$

A - opening area in cm^2
Q - boiler output in kW

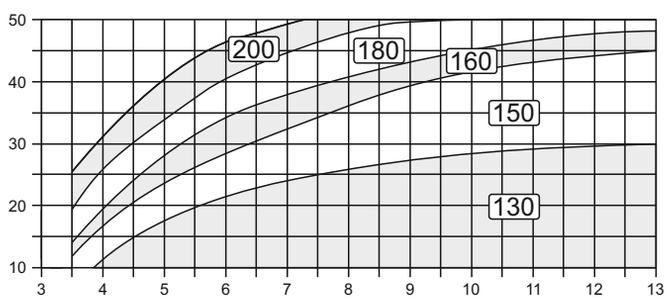
3.0. CONNECTION TO A CHIMNEY

Properly dimensioned and built chimney is the main condition for safe and economical functioning of the boiler. The thermal insulation of the chimney has to be done properly, it has to be absolutely gas-proof and smooth. On its lower part there has to be built in the opening for cleaning with the door. An brick-layed chimney has to have three layers with an insulation of 30 mm in the middle, if the chimney is built inside the house (i.e. inside the heated area), or an insulation of 50 mm if it is built outside the house (i.e. outside the heated area). The flue gas temperature has to be at least 30°C higher then the temperature of their condensation point. The choice and the construction of the chimney has to be performed by the authorized person. Inner diameter of the chimney must be selected according the possible effective chimney height and boiler power and according diagram below.
The chimney must be dimensioned according to the "chimney selection diagram" with a minimum inner clear cross-section of the connection between the boiler and the chimney of Φ 130 mm for PelTec II Lambda 12/18/24, Φ 150 mm for PelTec II Lambda 36/48. The diagram was made for a chimney length of 2 m with two 90° elbows (bends). If the chimney does not fit into the specified frame, the chimney must be raised according to the guidelines in the note below the diagram. Connection flue gas tube can be mounted horizontally or at any angle which allows to gas, on his way to chimney, a constant increase of height with considering of exit point from fan. Connection flue gas tube must have openings for cleaning through which is possible to clean entire length of flue gas tube or must ensure easy removal part of flue gas tube which allow complete cleaning of connection flue gas tube. To prevent entry of condensate form chimney into the boiler, flue gas tube must be mounted 10 mm deeper into the chimney. **Connection flue gas tube between fan and chimney must be insulated with 30-50 mm mineral wool.**

The chimney must be resistant against flue condensate!

Diagram. Dimensioning of the chimney for PelTec II Lambda 12-48 kW

10-50 kW



Chimney dimensioning examples:
PelTec II Lambda 24

Boiler heat output: ***24*** *kW*
Required usable chimney height: ***7,5*** *m*
Required inner chimney diameter: ***130*** *mm*
Inner diameter of the boiler-chimney connecting pipe: ***130*** *mm*
Fuel: ***wood pellets***

Chimney dimensioning examples:
(minimum inner clear cross-section of the connection between the boiler and the chimney)

boiler power (kW)

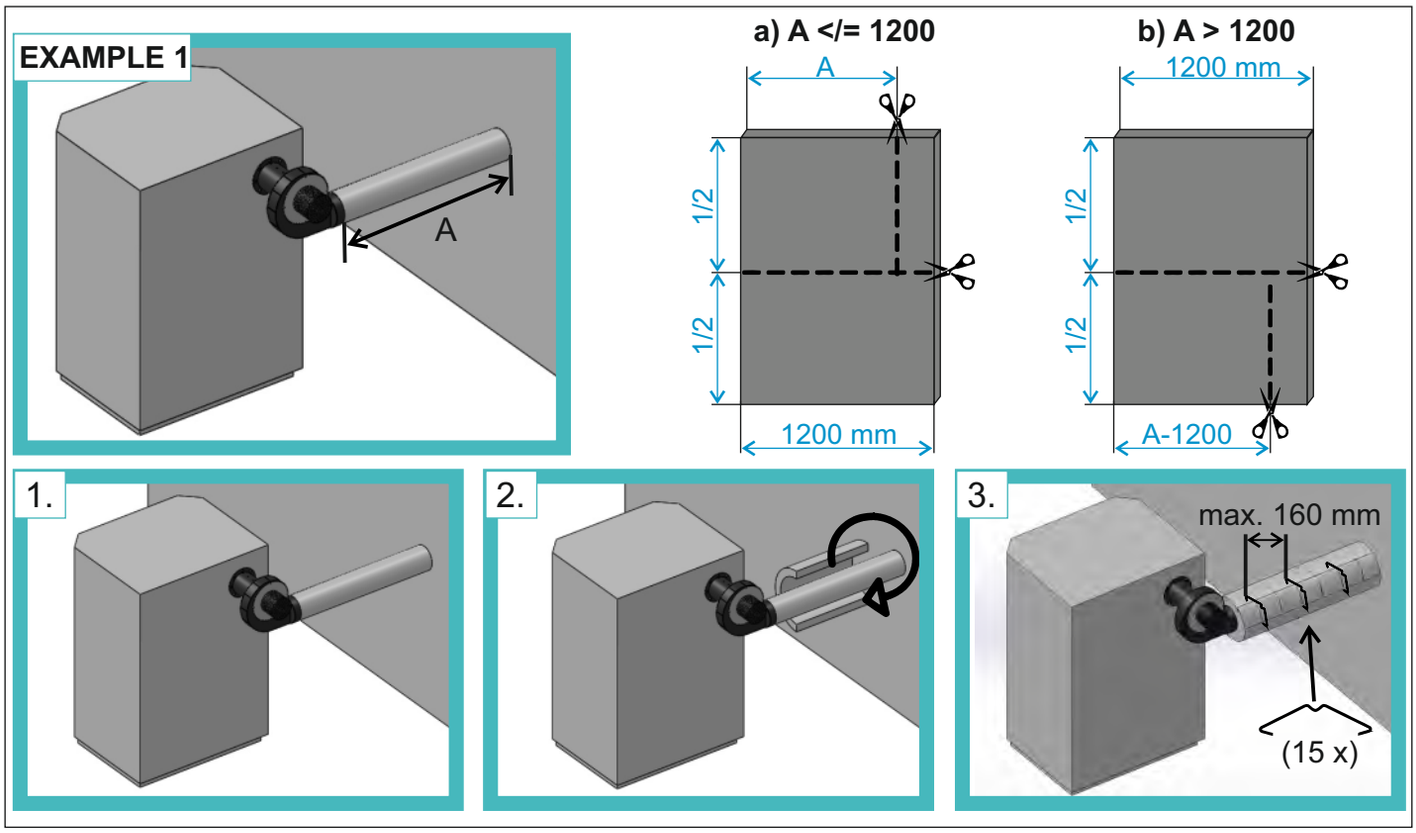
inner chimney diameter (mm)	*12*	*18*	*24*	*36*	*48*
130	***4,5***	***5,5***	***7,5***	***-***	***-***
150	***4***	***4,5***	***5,5***	***8***	***-***
160	***3,5***	***4***	***5***	***6,5***	***-***
180	***-***	***3,5***	***4***	***5,5***	***8,5***
200	***-***	***-***	***-***	***4,5***	***7***
220	***-***	***-***	***-***	***-***	***-***
250	***-***	***-***	***-***	***-***	***-***

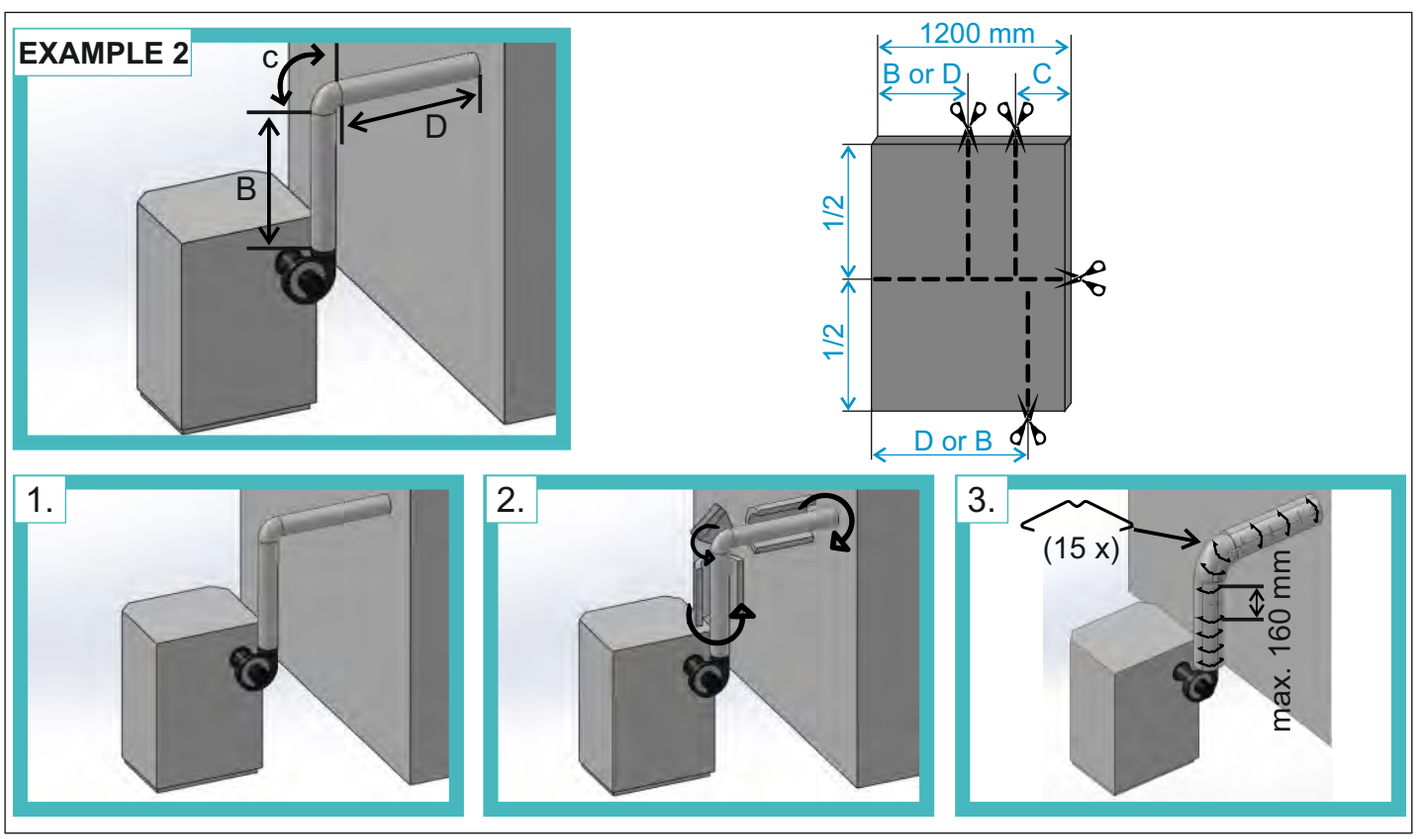
min. chimney effective height (m)

NOTES:
For flue gas tubes up to 2 m and 2 flue gas elbows look at the diagram.
In case of longer flue gas tube or there is more than 2 flue gas elbows, effective height must be selected from the diagram and for every additional meter of the flue gas tube and/or every additional flue gas elbow, add following value to the effective height:
- PelTec II Lambda 12-18: +0,5 m
- PelTec II Lambda 24-48: +1,0 m

In case of flue gas tubes longer than 5 meters, recommended is (or it's necessary) select flue gas tube for 10 mm bigger than boiler output because of ash deposits during the boiler working.
In any case, necessary is to predict correct amount cleaning openings for flue gas tube and elbows cleaning.

3.1. INSTALLATION OF THE CONNECTION FLUE GAS TUBE (BETWEEN FAN AND CHIMNEY) THERMAL INSULATION





4.0. INSTALLATION

All local regulations, including those referring to national and European standards need to be complied with when installing the appliance.

4.1. CONNECTION TO CENTRAL HEATING SYSTEM

All installation work must be made in accordance with valid national and European standards.
Boiler **PelTec II Lambda** can be built in closed and open central heating systems. In both cases boiler can be fired with wood pellets. Installation has to be made, in according to technical standards, by a professional who will be responsible for proper boiler operation. Before connecting boiler to central heating system, the system has to be flushed to remove impurities remaining after system installation. It prevents boiler overheating, noise within the system, disturbances at a pump and mixing valve. Boiler should always be connected to central heating system by connectors, never by welding. Figure 2. shows safe distances required for boiler cleaning and maintenance.

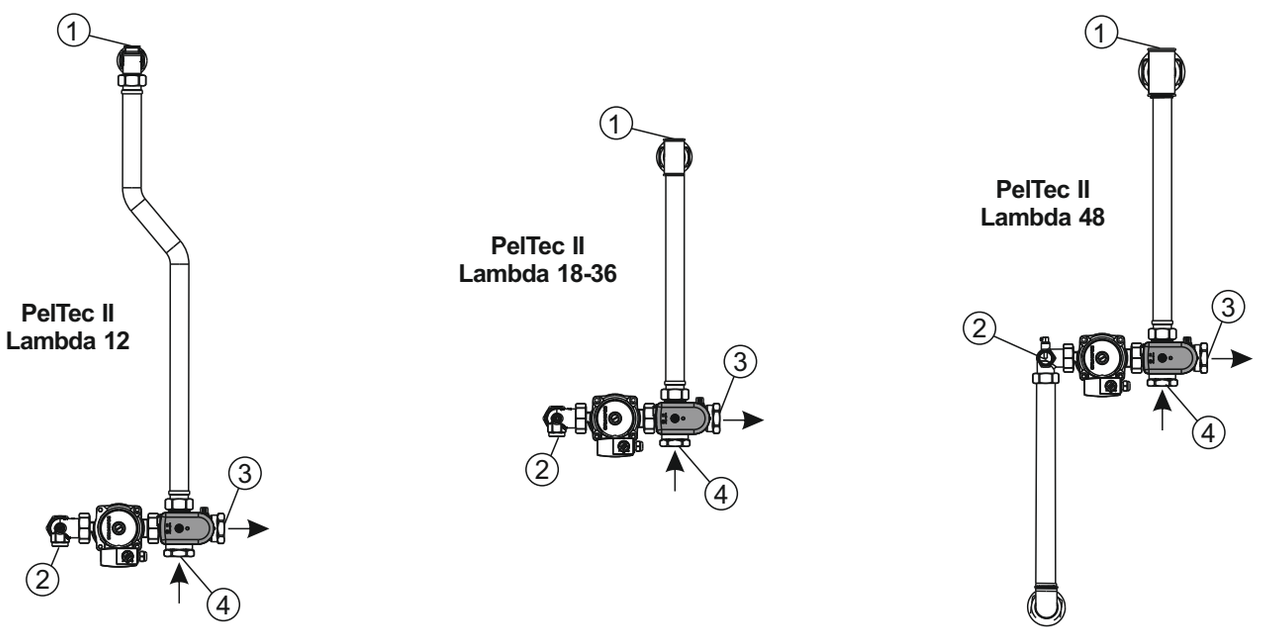
4.1.1. CONNECTION TO OPEN HEATING SYSTEM

In open system it is necessary to put an open expansion vessel min. 0,5 m above the height of the highest heating body. If expansion vessel is located in a room without heating, it should be insulated.

4.1.2. CONNECTION TO CLOSED HEATING SYSTEM

In closed heating system it is **obligatory** to build in certified safety valve with opening pressure of 2,5 bar and a membrane expansion vessel. Safety valve and expansion vessel must be built in accordance with professional rules and between safety valve and expansion vessel and boiler must not be any valve. Schemes for possible configurations are on following pages.

Figure 3. Connections to connect the boiler to a closed heating system



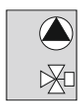
① - Safety airvent group connection
② - Expansion vessel connection
③ - Main flow to installation
④ - Return flow from installation

4.2. CONFIGURATION - DESCRIPTION

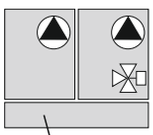
Temperatures choice depends on the configuration of heating. Below are shown all types of installation and configuration.

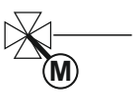
Pump group
(direct heating system pump / DHW)

Pump group
(heating system pump with 3-way valve with actuator)



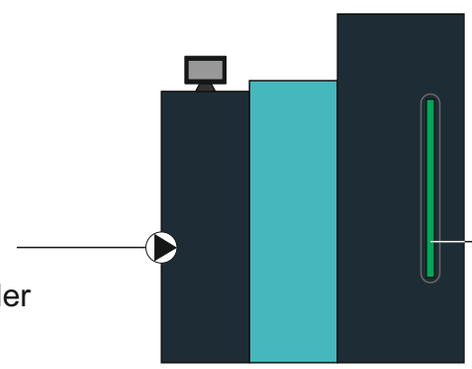
Pump groups
(direct heating system pump / DHW and heating system pump with 3-way valve with actuator)





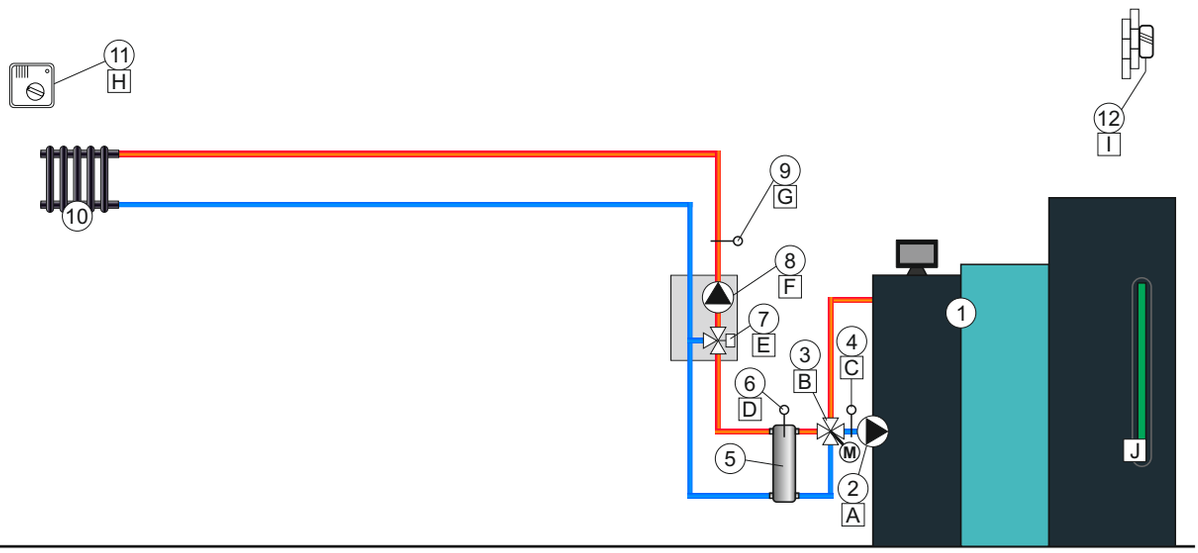
MIXING VALVE
(4-way mixing valve with actuator - boiler circuit)

P(PWM) -
(Boiler circuit)
(boiler pump)
is located in the boiler



Fuel level sensor

4.2.1. EXAMPLE OF SENSORS AND PUMPS CONNECTIONS (CONFIGURATION 1)



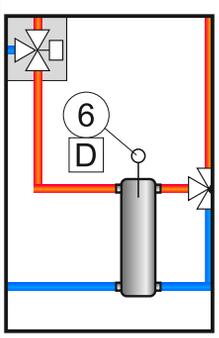
A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	MIX VALVE CL1 OP1
F	PUMPS P1
G	S4 Circuit 1
H	CSK CSK1 1.P 2.G 3.T
H	CSK-Touch CSKT + -
I	S8 Outdoor
J	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (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

Devices (pumps, CSK, etc.)

Marks on the UniDrive main PCB.

Notes:
- in this configuration is possible to upgrade up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.



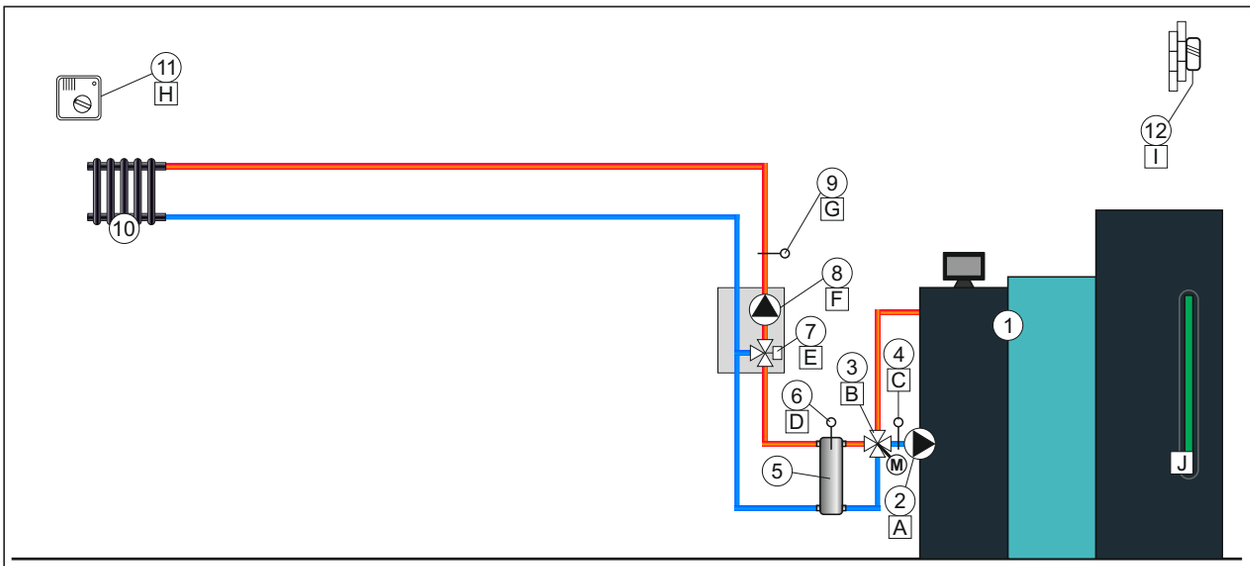
D	S7 CRO

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

Main PCB: **UniDrive**

4.2.2. CONFIGURATION / SCHEME

CONFIGURATION 1

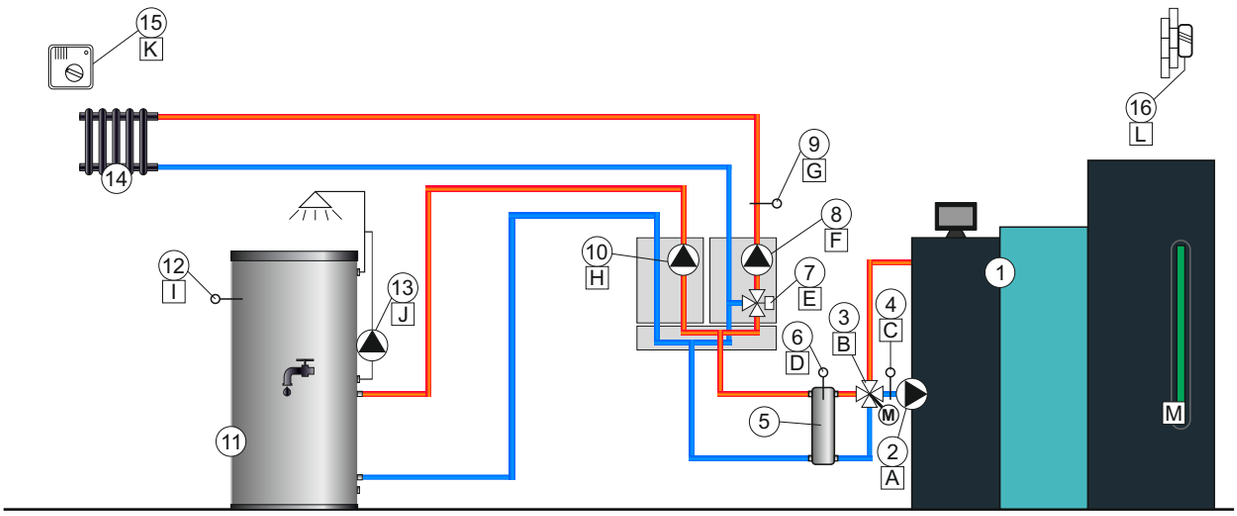


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	MIX VALVE CL1 OP1
F	PUMPS P1
G	S4 Circuit 1
H	CSK CSK1 1.P 2.G 3.T
H	CSK-Touch CSKT + -
I	S8 Outdoor
J	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (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 upgrade up to 3 unit "CM2K module for regulation 2 heating circuits“.
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 2

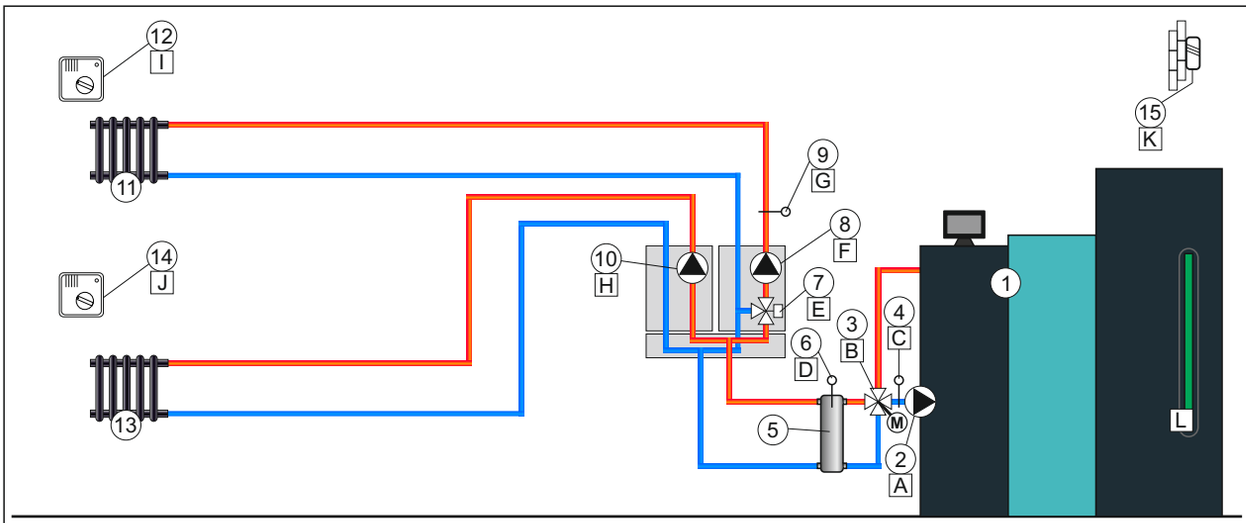


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - DHW (Heating circuit 2 (K2))
11 - **(K2)** Heating circuit 2 (DHW)
12 - Temperature sensor DHW ((K2) Heating circuit 2)
13 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
14 - **(K1)** Heating circuit 1 (with mixing valve 1)
15 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
16 - Outdoor temperature sensor

Notes:
- in this configuration is possible to upgrade up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	MIX VALVE CL1 OP1
F	PUMPS P1
G	S4 Circuit 1
H	PUMPS P2
I	S6 Circuit 2
J	PUMPS P3
K	CSK: CSK1 1.P 2.G 3.T / CSK-Touch: CSKT + -
L	S8 Outdoor
M	CMSR +5V IN2 G

CONFIGURATION 3

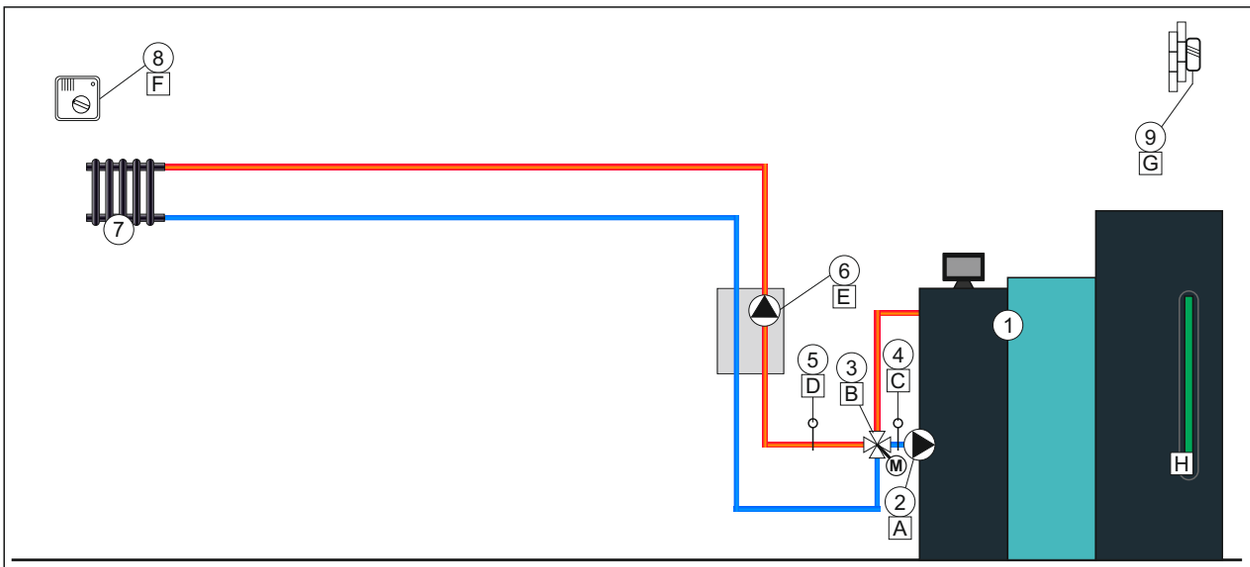


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - (heating circuit 2 (K2))
11 - **(K1)** Heating circuit 1 (with mixing valve 1)
12 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
13 - **(K2)** Heating circuit 2 - (direct circuit)
14 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
15 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	MIX VALVE CL1 OP1
F	PUMPS P1
G	S4 Circuit 1
H	PUMPS P2
I	CSK 1: CSK1 1.P 2.G 3.T / CSK-Touch 1: CSKT + -
J	CSK 2: CSK2 1.P 2.G 3.T
K	S8 Outdoor
L	CMSR +5V IN2 G

CONFIGURATION 4

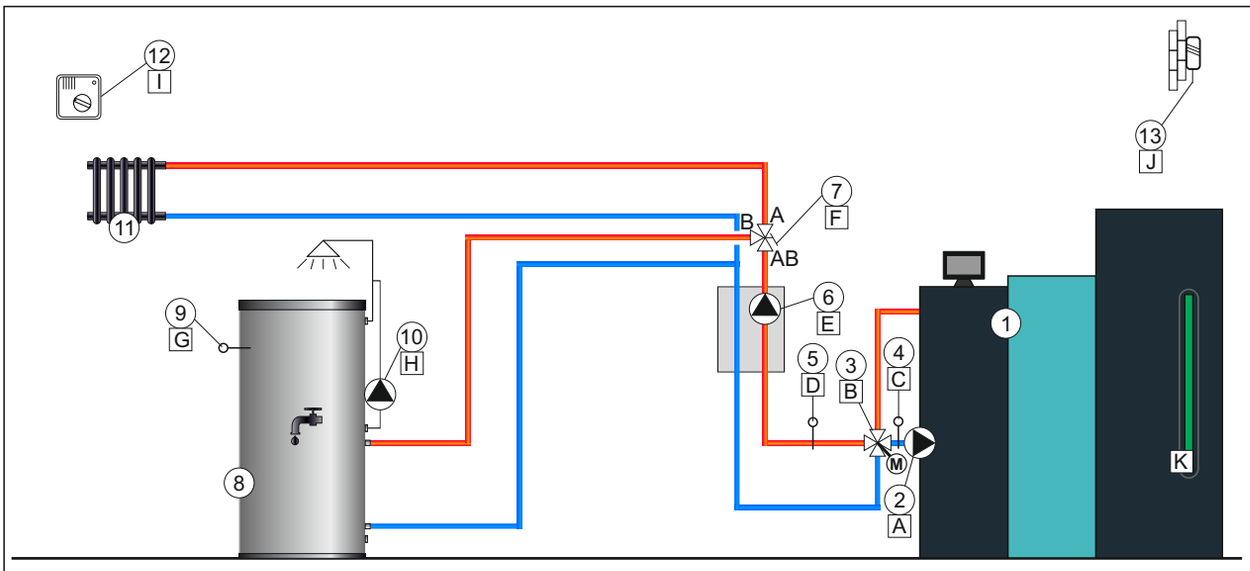


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S4 Circuit 1
E	PUMPS P1
F	CSK CSK1 1.P 2.G 3.T
F	CSK-Touch CSKT + -
G	S8 Outdoor
H	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Temperature sensor ((K1) Heating circuit 1 - main flow)
6 - **P1** - (Heating circuit 1 (K1))
7 - **(K1)** Heating circuit 1 - (direct circuit)
8 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
9 - Outdoor temperature sensor

Notes:
- in this configuration, it is not possible to connect the "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 5

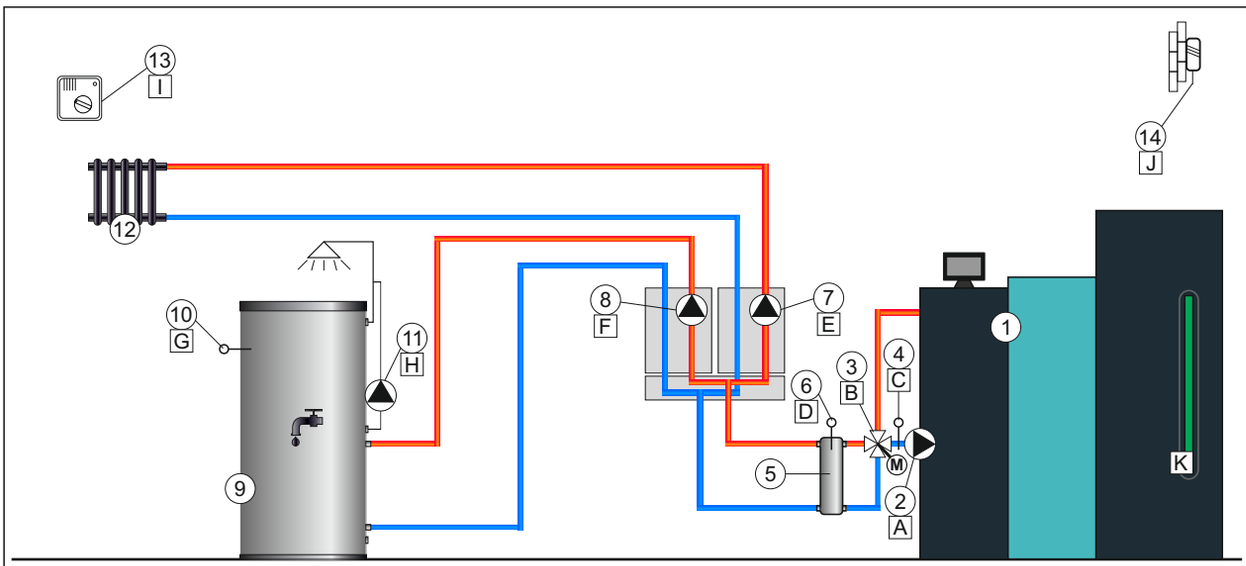


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S4 Circuit 1
E	PUMPS P1
F	PUMPS P2
G	S6 Circuit 2
H	PUMPS P3
I	CSK CSK1 1.P 2.G 3.T
I	CSK-Touch CSKT + -
J	S8 Outdoor
K	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Temperature sensor ((K1) Heating circuit 1 - main flow)
6 - **P1** - P1
7 - **P2** - Diverting valve
8 - **(K2)** Heating circuit 2 (DHW)
9 - Temperature sensor DHW ((K2) Heating circuit 2)
10 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
11 - **(K1)** Heating circuit 1 - (direct circuit)
12 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
13 - Outdoor temperature sensor

Notes:
- in this configuration, it is not possible to connect the "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 6

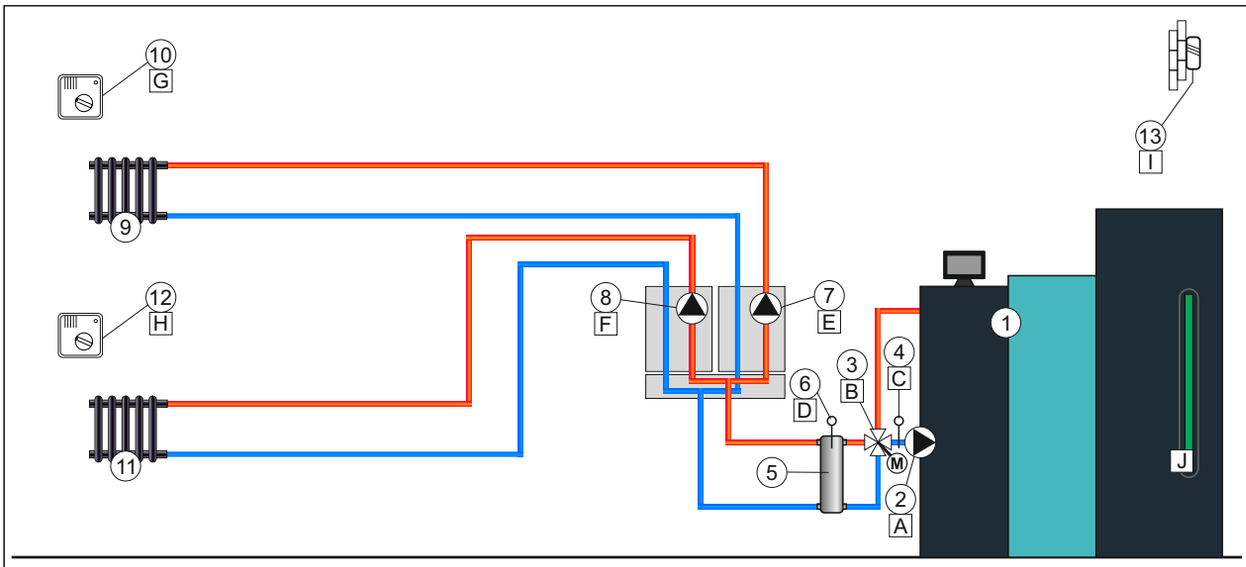


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S6 Circuit 2
H	PUMPS P3
I	CSK: CSK1 — 1.P | 2.G | 3.T
I	CSK-Touch: CSKT — + | -
J	S8 Outdoor
K	CMSR — +5V | IN2 | G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - DHW (Heating circuit 2 (K2))
9 - **(K2)** Heating circuit 2 (DHW)
10 - Temperature sensor DHW ((K2) Heating circuit 2)
11 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
12 - **(K1)** Heating circuit 1 - (direct circuit)
13 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
14 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 7

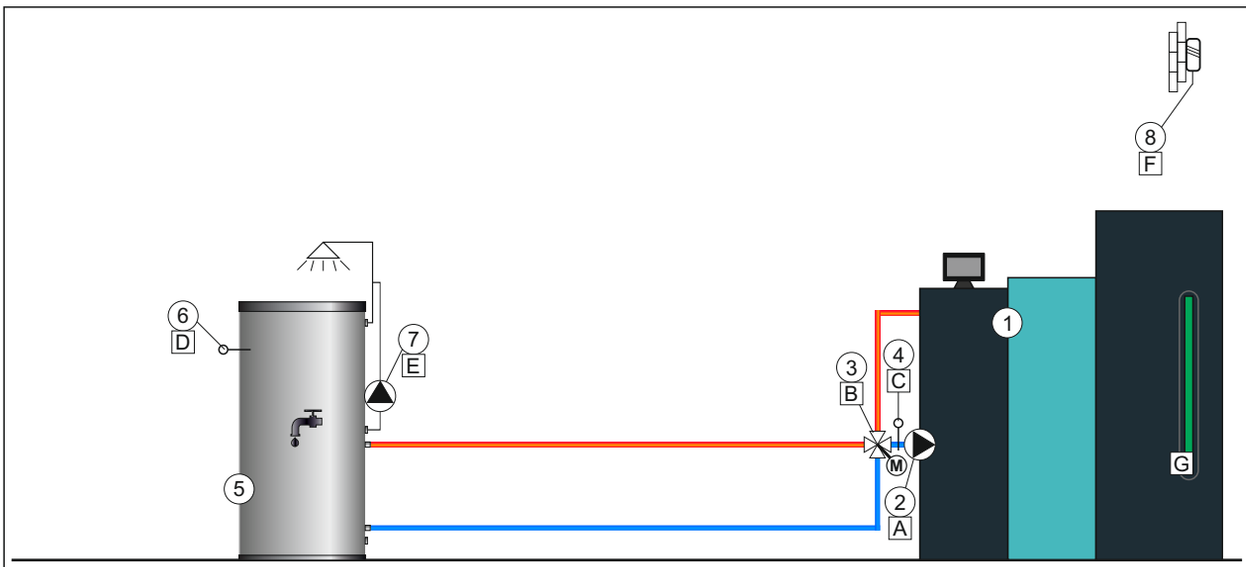


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	CSK 1: CSK1 — 1.P | 2.G | 3.T
G	CSK-Touch 1: CSKT — + | -
H	CSK 2: CSK2 — 1.P | 2.G | 3.T
I	S8 Outdoor
J	CMSR — +5V | IN2 | G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - (Heating circuit 2 (K2))
9 - **(K1)** Heating circuit 1 - (direct circuit)
10 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
11 - **(K2)** Heating circuit 2 - (direct circuit)
12 - Room corrector CSK 2 ((K2) heating circuit 2) / 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".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 8

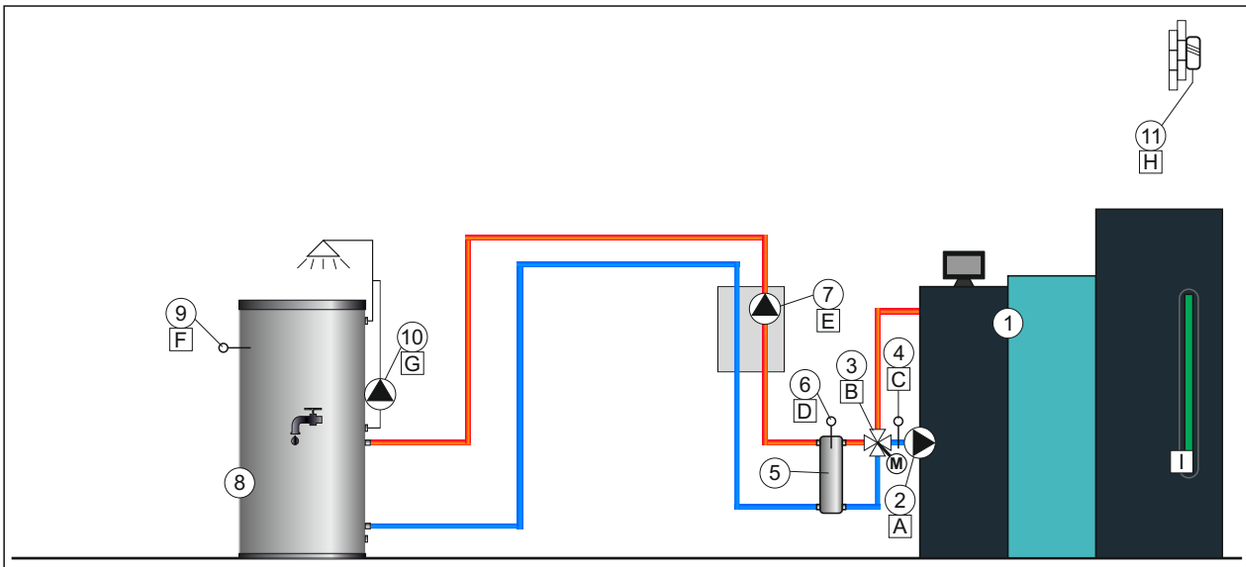


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S4 Circuit 1
E	PUMPS P1
F	S8 Outdoor
G	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - **(K1)** Heating circuit 1 (DHW)
6 - Temperature sensor DHW ((K1) Heating circuit 1)
7 - **P1** - Recirculation DHW (Heating circuit 1 (K1))
8 - Outdoor temperature sensor

Notes:
- in this configuration, it is not possible to connect the "CM2K module for regulation 2 heating circuits".
- in this configuration, it is not possible to connect the CSK-Touch (additional equipment).

CONFIGURATION 9

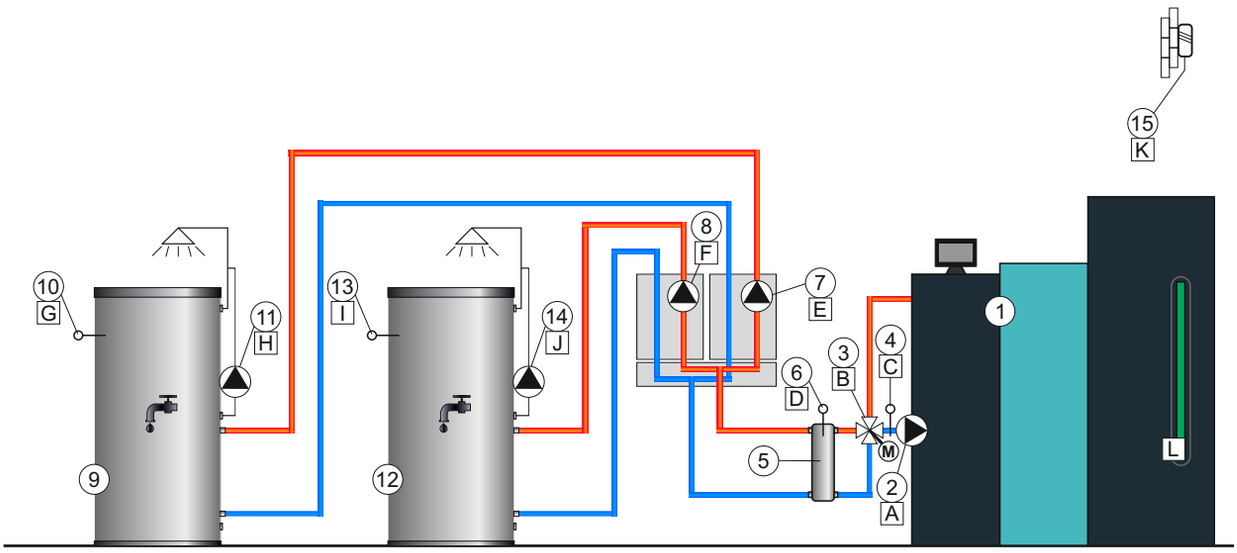


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	S4 Circuit 1
G	PUMPS P2
H	S8 Outdoor
I	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - DHW (Heating circuit 1 (K1))
8 - **(K1)** Heating circuit 1 (DHW)
9 - Temperature sensor DHW ((K1) Heating circuit 1)
10 - **P2** - 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.

CONFIGURATION 10

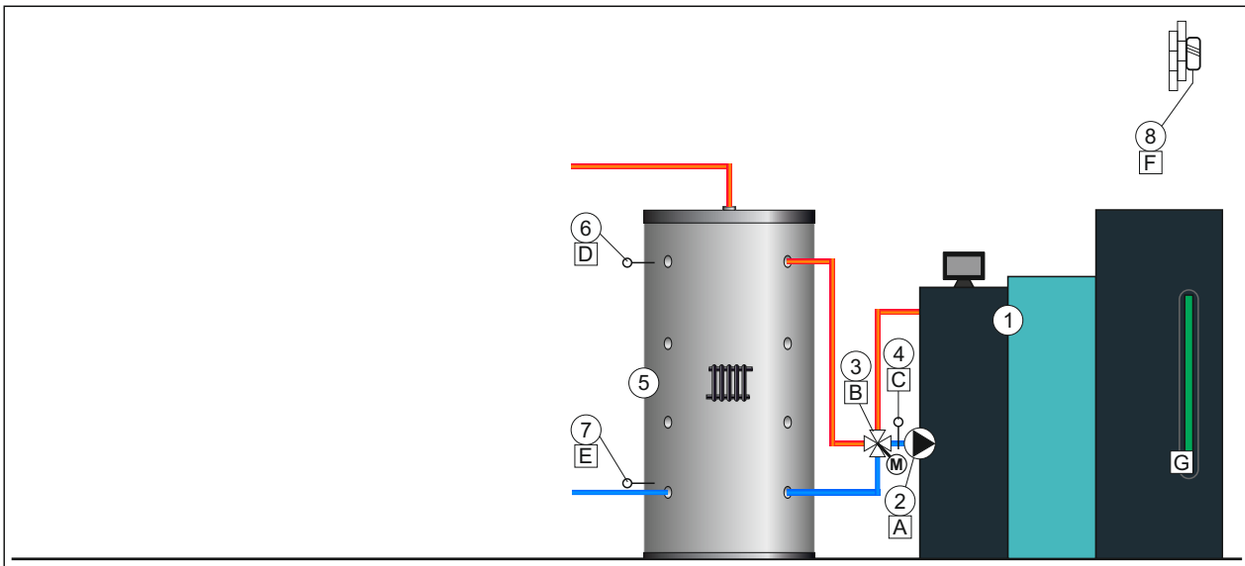


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S4 Circuit 1
H	PUMPS P3
I	S6 Circuit 2
J	PUMPS P4
K	S8 Outdoor
L	CMSR +5V IN2 G
*	CSK-Touch CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - DHW (Heating circuit 1 (K1))
8 - **P2** - DHW (Heating circuit 2 (K2))
9 - **(K1)** Heating circuit 1 (DHW)
10 - Temperature sensor DHW ((K1) Heating circuit 1)
11 - **P3** - Recirculation DHW (Heating circuit 1 (K1))
12 - **(K2)** Heating circuit 2 (DHW)
13 - Temperature sensor DHW ((K2) Heating circuit 2)
14 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
15 - 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, it is not possible to use Rotary valve and Screw refill (additional equipment).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 11

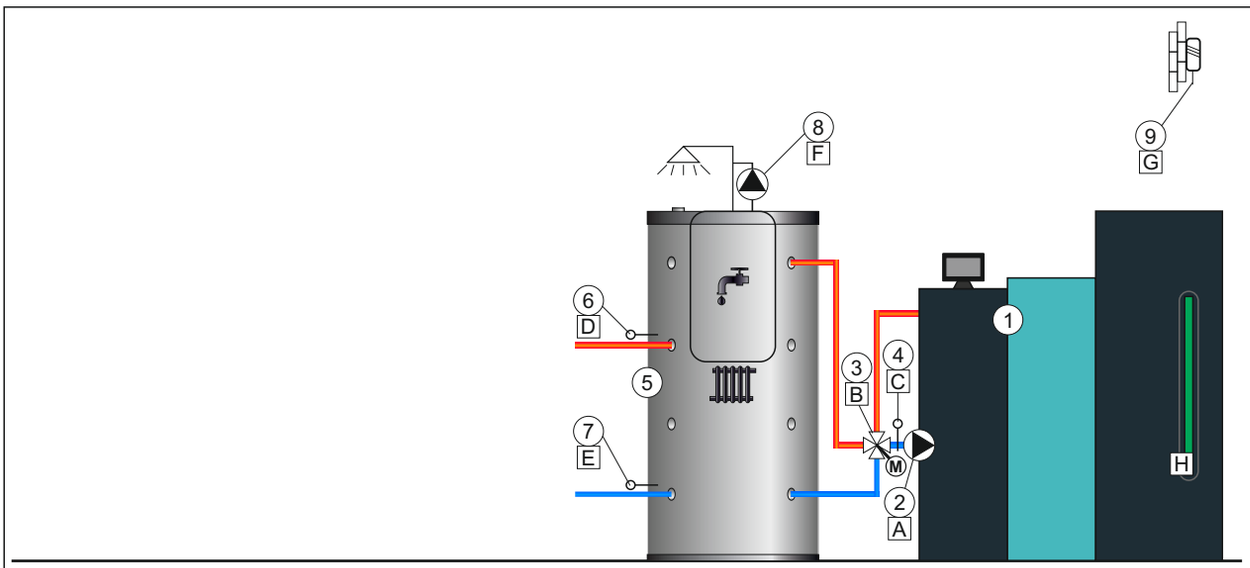


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	S8 Outdoor
G	CMSR +5V IN2 G
*	CSK-Touch CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - 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, it is possible to connect 8 boilers in a cascade using the CMNET module (all boilers are connected to the same accumulation (buffer) tank/s).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 12

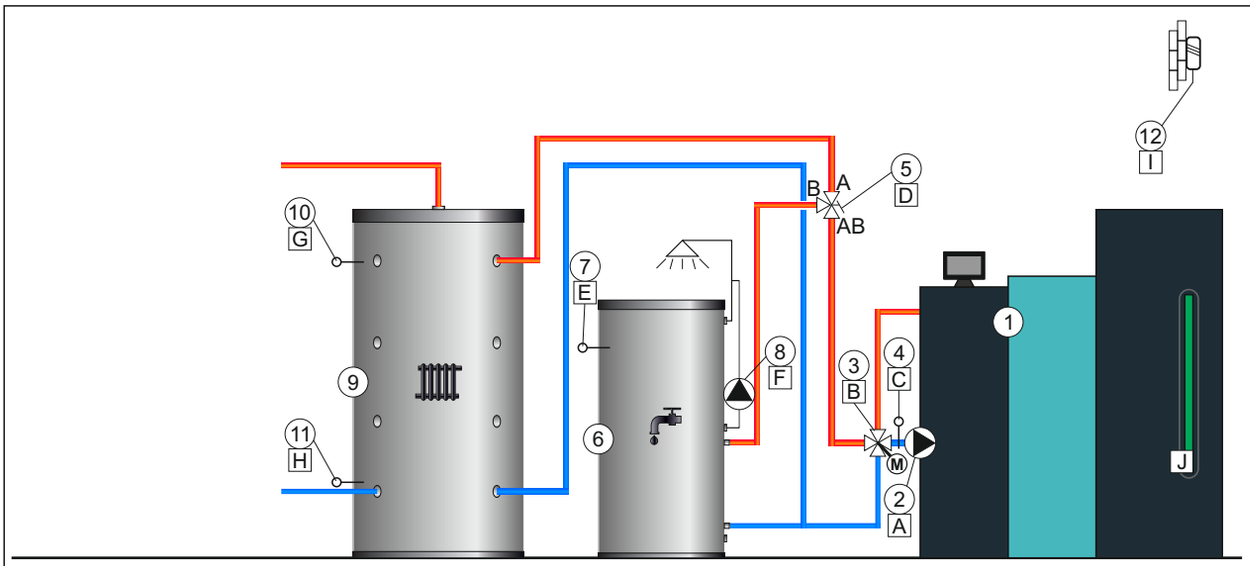


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	S8 Outdoor
H	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - 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 13

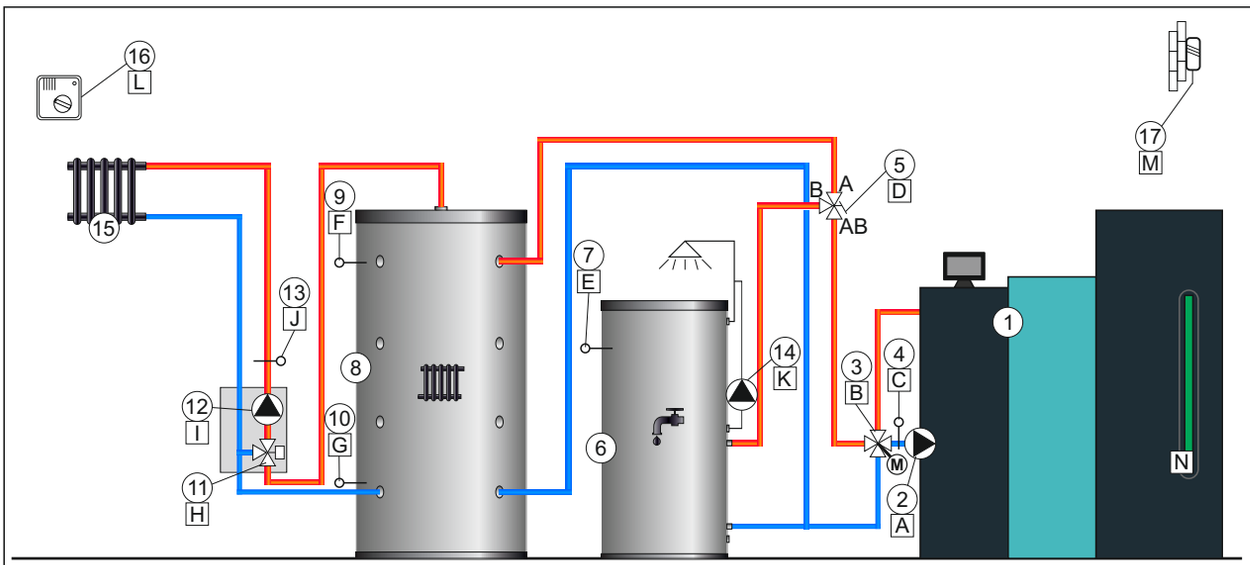


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	PUMPS P1
E	S4 Circuit 1
F	PUMPS P2
G	S5 Buffer up
H	S3 Buffer down
I	S8 Outdoor
J	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - **P1** - Diverting valve
6 - **(K1)** Heating circuit 1 (DHW)
7 - Temperature sensor DHW ((K1) Heating circuit 1)
8 - **P2** - Recirculation DHW (Heating circuit 1 (K1))
9 - "CAS" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
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 14

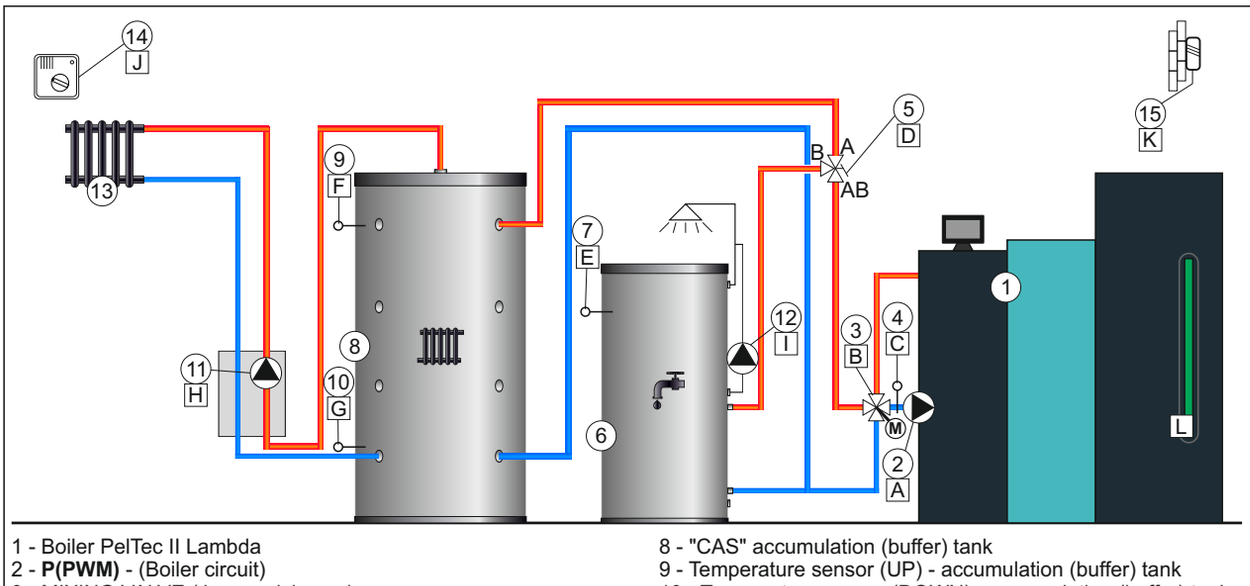


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - **P1** - Diverting valve
6 - **(K2)** Heating circuit 2 (DHW)
7 - Temperature sensor DHW ((K2) Heating circuit 2)
8 - "CAS" accumulation (buffer) tank
9 - Temperature sensor (UP) - accumulation (buffer) tank
10 - Temperature sensor (DOWN) - accumulation (buffer) tank
11 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
12 - **P2** - (Heating circuit 1 (K1))
13 - Temperature sensor ((K1) Heating circuit 1 - main flow)
14 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
15 - **(K1)** Heating circuit 1 (with mixing valve 1)
16 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
17 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	PUMPS	P1		
E	S6 Circuit 2			
F	S5 Buffer up			
G	S3 Buffer down			
H	MIX VALVE	CL1	OP1	
I	PUMPS		P2	
J	S4 Circuit 1			
K	PUMPS			P3
L	CSK	CSK1	1.P / 2.G / 3.T	
L	CSK-Touch	CSKT	+ / -	
M	S8 Outdoor			
N	CMSR	+5V	IN2	G

CONFIGURATION 15

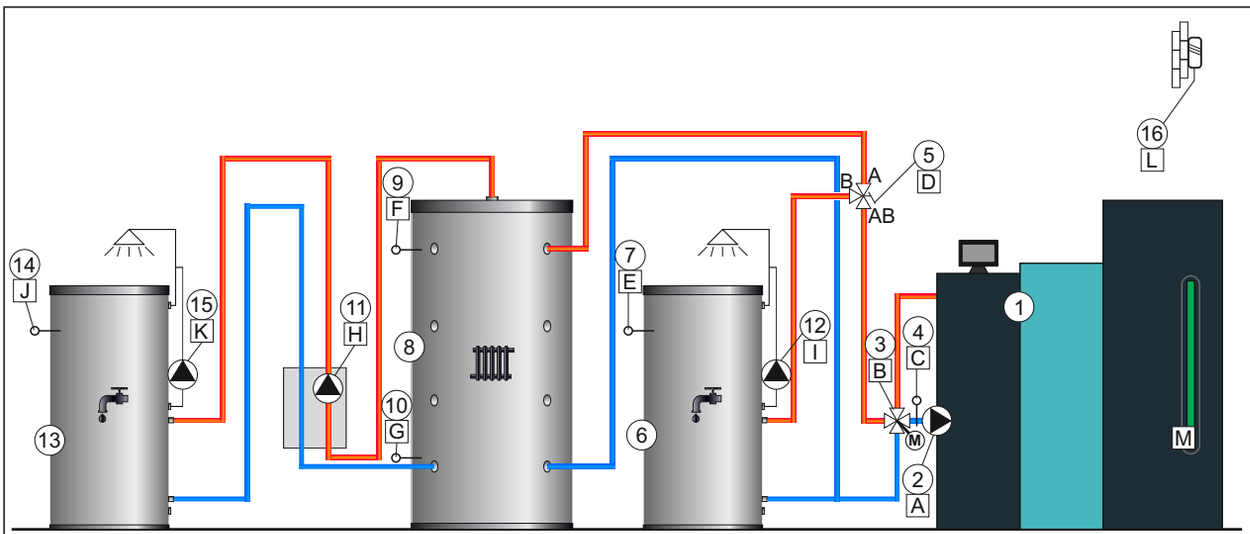


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - **P1** - Diverting valve
6 - **(K2)** Heating circuit 2 (DHW)
7 - Temperature sensor DHW ((K2) Heating circuit 2)
8 - "CAS" accumulation (buffer) tank
9 - Temperature sensor (UP) - accumulation (buffer) tank
10 - Temperature sensor (DOWN) - accumulation (buffer) tank
11 - **P2** - (Heating circuit 1 (K1))
12 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
13 - **(K1)** Heating circuit 1 - (direct circuit)
14 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
15 - Outdoor temperature sensor

Note:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	PUMPS	P1		
E	S6 Circuit 2			
F	S5 Buffer up			
G	S3 Buffer down			
H	PUMPS		P2	
I	PUMPS			P3
J	CSK	CSK1	1.P / 2.G / 3.T	
J	CSK-Touch	CSKT	+ / -	
K	S8 Outdoor			
L	CMSR	+5V	IN2	G

CONFIGURATION 16

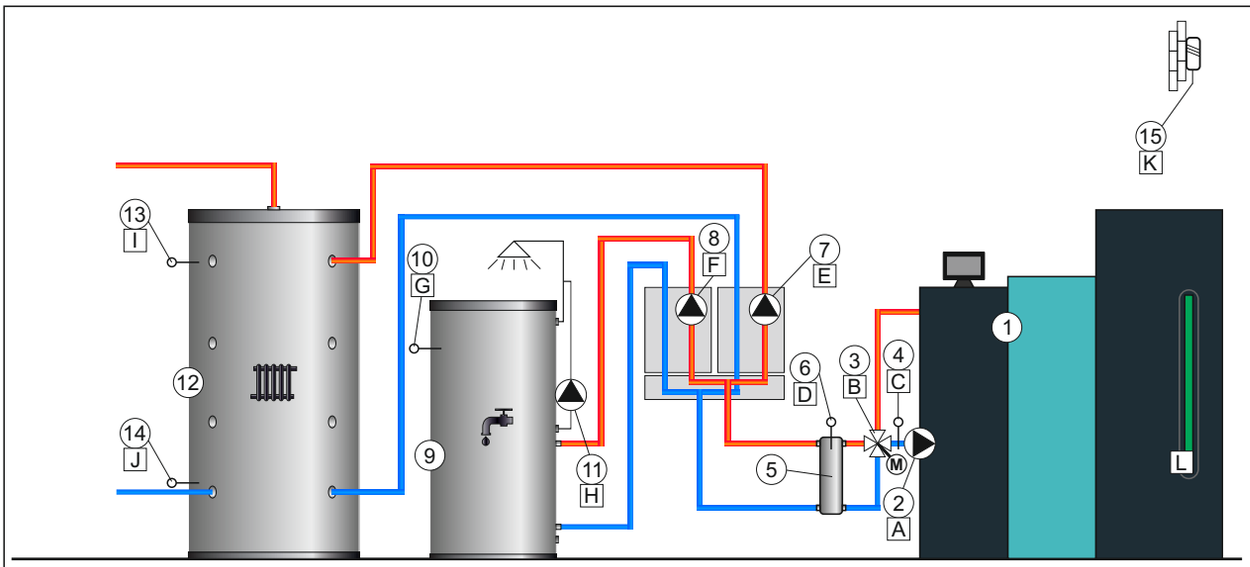


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - **P1** - Diverting valve
6 - **(K1)** Heating circuit 1 (DHW)
7 - Temperature sensor DHW ((K1) Heating circuit 1)
8 - "CAS" accumulation (buffer) tank
9 - Temperature sensor (UP) - accumulation (buffer) tank
10 - Temperature sensor (DOWN) - accumulation (buffer) tank
11 - **P2** - DHW (Heating circuit 2 (K2))
12 - **P3** - Recirculation DHW (Heating circuit 1 (K1))
13 - **(K2)** Heating circuit 2 (DHW)
14 - Temperature sensor DHW ((K2) Heating circuit 2)
15 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
16 - 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, it is not possible to use Rotary valve and Screw refill (additional equipment).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

A	P(PWM) to connectors				
B	MIX VALVE to connector				
C	S2 Return				
D	PUMPS	P1			
E	S4 Circuit 1				
F	S5 Buffer up				
G	S3 Buffer down				
H	PUMPS		P2		
I	PUMPS			P3	
J	S6 Circuit 2				
K	PUMPS				P4
L	S8 Outdoor				
M	CMSR	+5V	IN2	G	
	CSK-Touch				
*	CSKT	+	-		

CONFIGURATION 17

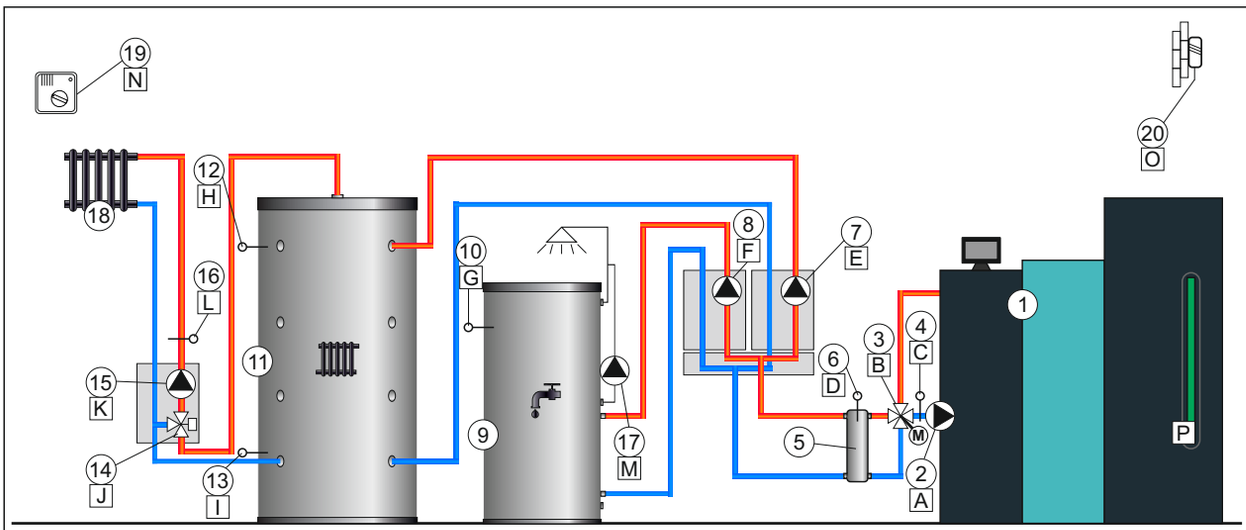


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - BUF (accumulation (buffer) tank)
8 - **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 - "CAS" accumulation (buffer) tank
13 - Temperature sensor (UP) - accumulation (buffer) tank
14 - Temperature sensor (DOWN) - accumulation (buffer) tank
15 - 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, it is not possible to use Rotary valve or Screw refill (additional equipment).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

A	P(PWM) to connectors				
B	MIX VALVE to connector				
C	S2 Return				
D	S7 CRO				
E	PUMPS	P1			
F	PUMPS		P2		
G	S4 Circuit 1				
H	PUMPS			P3	
I	S5 Buffer up				
J	S3 Buffer down				
K	S8 Outdoor				
L	CMSR	+5V	IN2	G	
	CSK-Touch				
*	CSKT	+	-		

CONFIGURATION 18

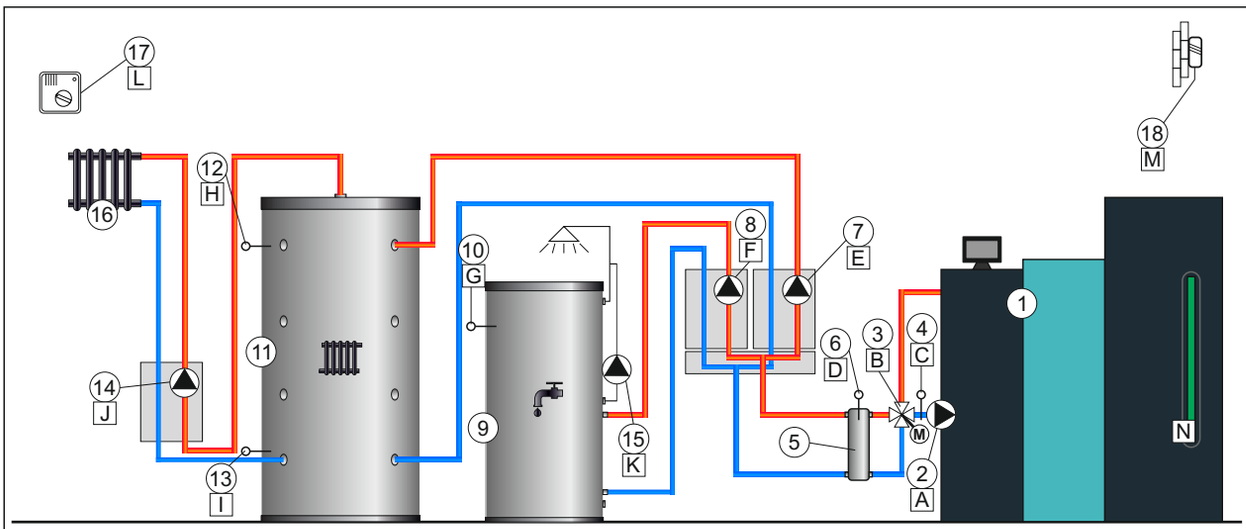


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - BUF (accumulation (buffer) tank)
8 - **P2** - DHW (Heating circuit 2 (K2))
9 - **(K2)** Heating circuit 2 (DHW)
10 - Temperature sensor DHW ((K2) Heating circuit 2)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
15 - **P3** - (Heating circuit 1 (K1))
16 - Temperature sensor ((K1) Heating circuit 1 - main flow)
17 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
18 - **(K1)** Heating circuit 1 (with mixing valve 1)
19 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
20 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S6 Circuit 2
H	S5 Buffer up
I	S3 Buffer down
J	MIX VALVE CL1 OP1
K	PUMPS P3
L	S4 Circuit 1
M	PUMPS P4
N	CSK: CSK1 1.P 2.G 3.T
N	CSK-Touch: CSKT + -
O	S8 Outdoor
P	CMSR +5V IN2 G

CONFIGURATION 19



1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - BUF (accumulation (buffer) tank)
8 - **P2** - DHW (Heating circuit 2 (K2))
9 - **(K2)** Heating circuit 2 (DHW)
10 - Temperature sensor DHW ((K2) Heating circuit 2)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - (Heating circuit 1 (K1))
15 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
16 - **(K1)** Heating circuit 1 - (direct circuit)
17 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
18 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S6 Circuit 2
H	S5 Buffer up
I	S3 Buffer down
J	PUMPS P3
K	PUMPS P4

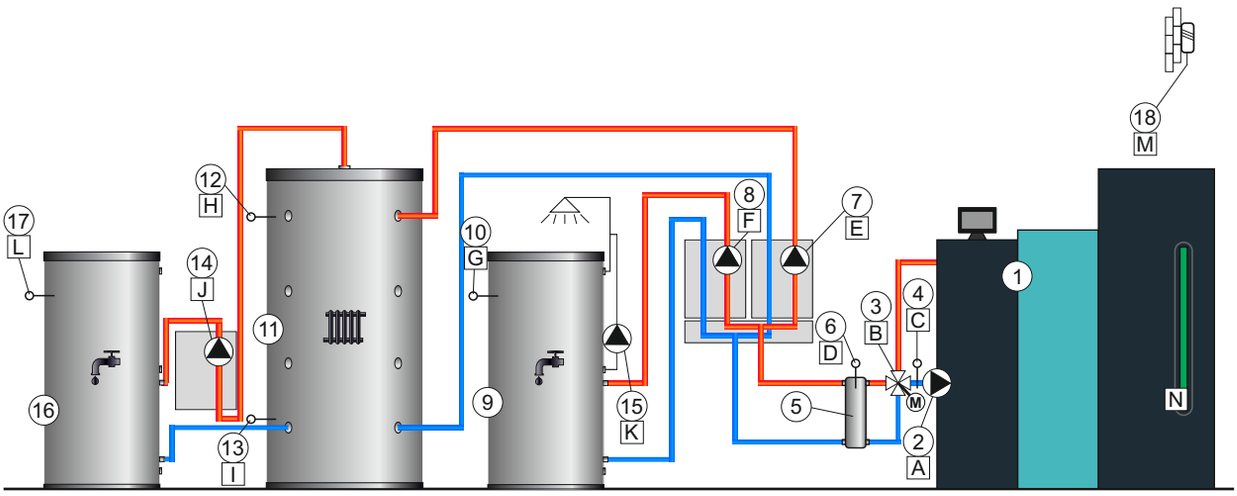
L	CSK		
	CSK1		
	1.P	2.G	3.T

L	CSK-Touch	
	CSKT	
	+	-

M	S8 Outdoor

N	CMSR		
	+5V	IN2	G

CONFIGURATION 20

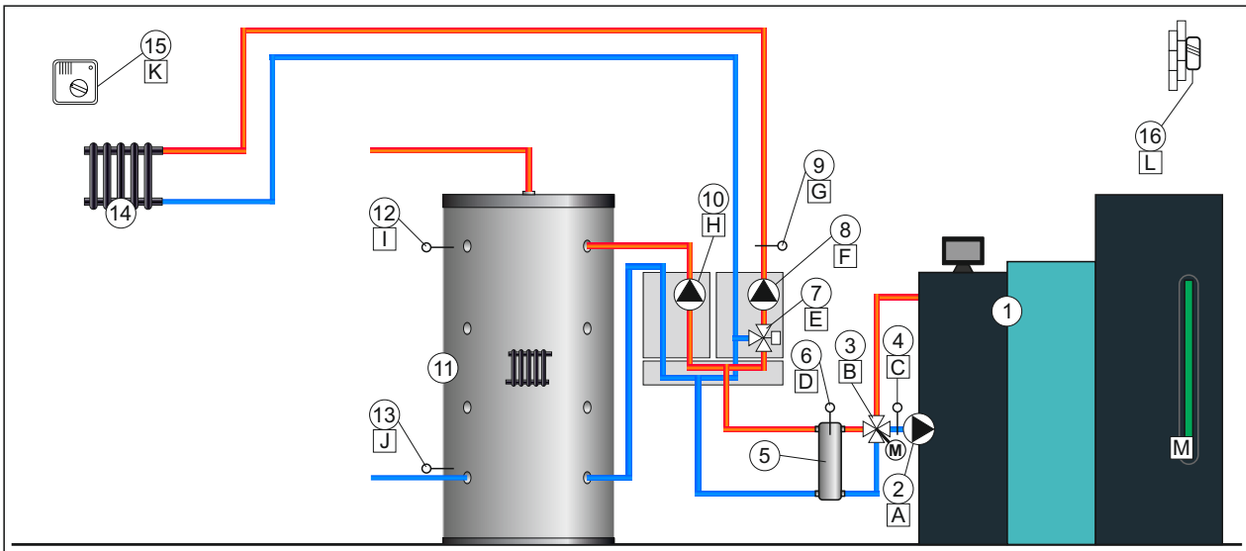


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - BUF (accumulation (buffer) tank)
8 - **P2** - DHW (Heating circuit 1 (K1))
9 - **(K1)** Heating circuit 1 (DHW)
10 - Temperature sensor DHW ((K1) Heating circuit 1)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - DHW (Heating circuit 2 (K2))
15 - **P4** - Recirculation DHW (Heating circuit 1 (K1))
16 - **(K2)** Heating circuit 2 (DHW)
17 - Temperature sensor DHW ((K2) Heating circuit 2)
18 - 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, it is not possible to use Rotary valve and Screw refill (additional equipment).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S4 Circuit 1
H	S5 Buffer up
I	S3 Buffer down
J	PUMPS P3
K	PUMPS P4
L	S6 Circuit 2
M	S8 Outdoor
N	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

CONFIGURATION 21

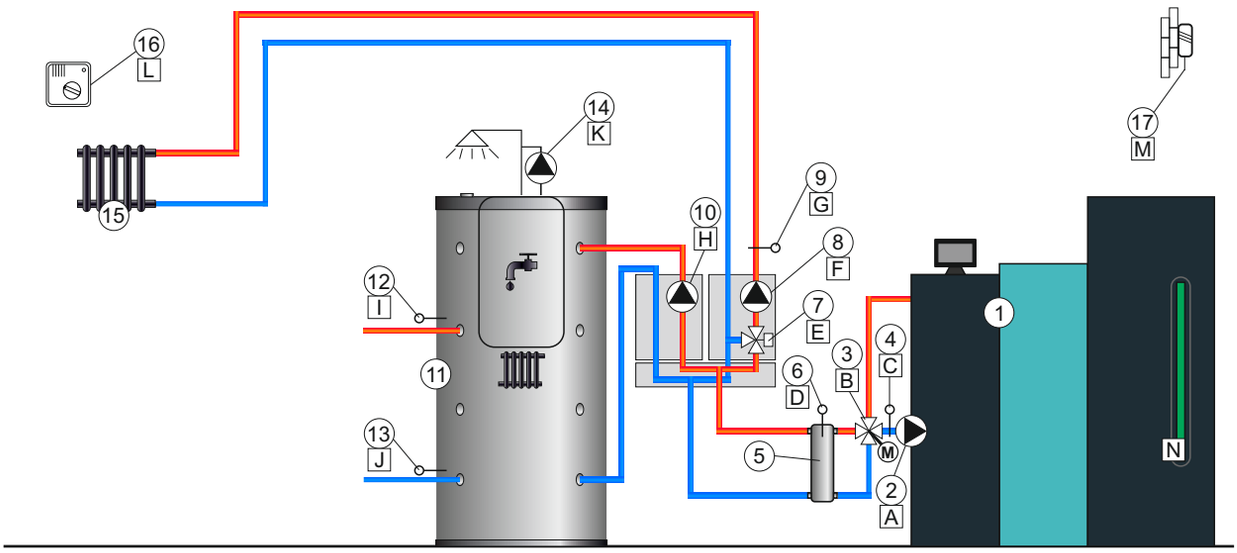


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - BUF (accumulation (buffer) tank)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **(K1)** Heating circuit 1 (with mixing valve 1)
15 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
16 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	MIX VALVE CL1 OP1
F	PUMPS P1
G	S4 Circuit 1
H	PUMPS P2
I	S5 Buffer up
J	S3 Buffer down
	CSK
K	CSK1 1.P 2.G 3.T
	CSK-Touch
K	CSKT + -
L	S8 Outdoor
M	CMSR +5V IN2 G

CONFIGURATION 22

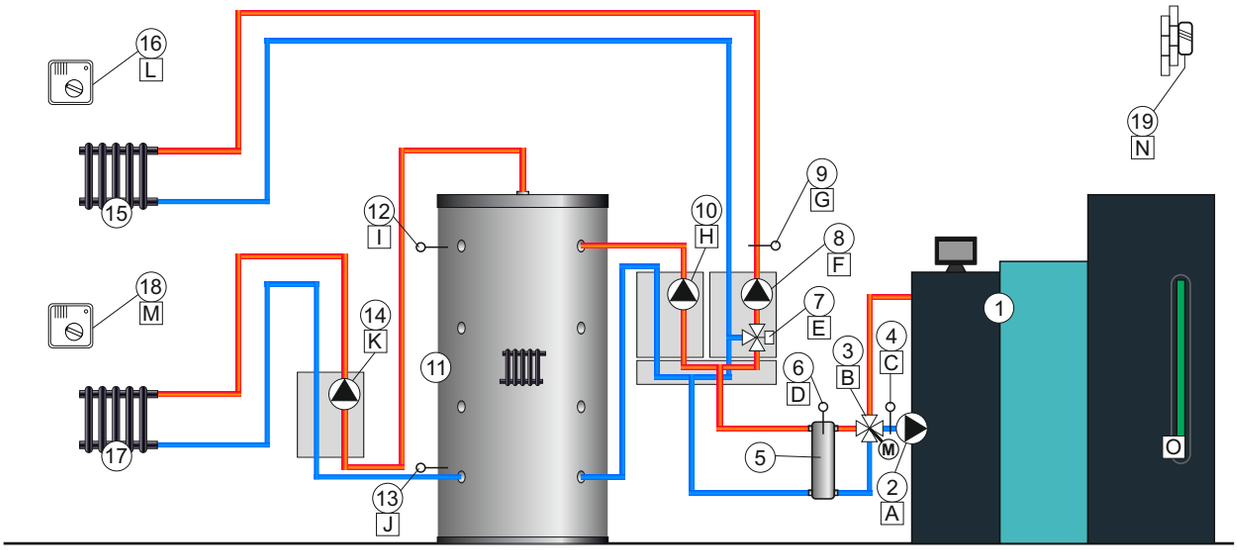


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - BUF (accumulation (buffer) tank)
11 - "CAS-B" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - Recirculation DHW
15 - **(K1)** Heating circuit 1 (with mixing valve 1)
16 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
17 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	S7 CRO			
E	MIX VALVE	CL1	OP1	
F	PUMPS	P1		
G	S4 Circuit 1			
H	PUMPS		P2	
I	S5 Buffer up			
J	S3 Buffer down			
K	PUMPS			P3
L	CSK	CSK1		
		1.P	2.G	3.T
L	CSK-Touch	CSKT		
		+	-	
M	S8 Outdoor			
N	CMSR	+5V	IN2	G

CONFIGURATION 23

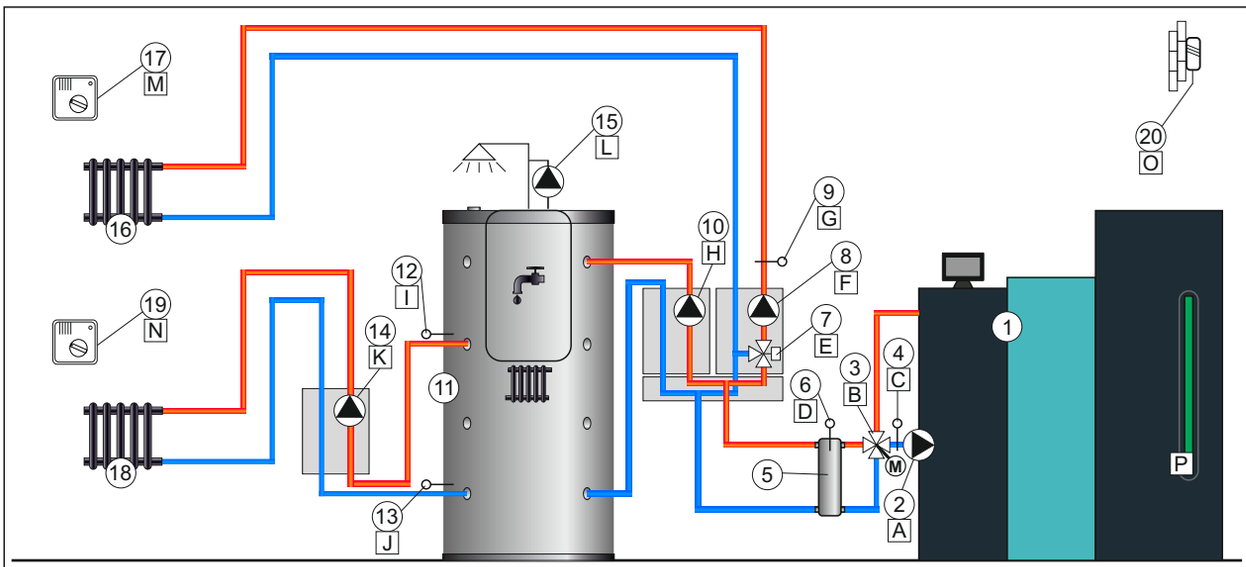


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - BUF (accumulation (buffer) tank)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - (Heating circuit 2 (K2))
15 - **(K1)** Heating circuit 1 (with mixing valve 1)
16 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
17 - **(K2)** Heating circuit 2 - (direct circuit)
18 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
19 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	S7 CRO			
E	MIX VALVE	CL1	OP1	
F	PUMPS	P1		
G	S4 Circuit 1			
H	PUMPS		P2	
I	S5 Buffer up			
J	S3 Buffer down			
K	PUMPS			P3
L	CSK 1 CSK1	1.P	2.G	3.T
L	CSK-Touch 1 CSKT	+	-	
M	CSK 2 CSK2	1.P	2.G	3.T
N	S8 Outdoor			
O	CMSR	+5V	IN2	G

CONFIGURATION 24

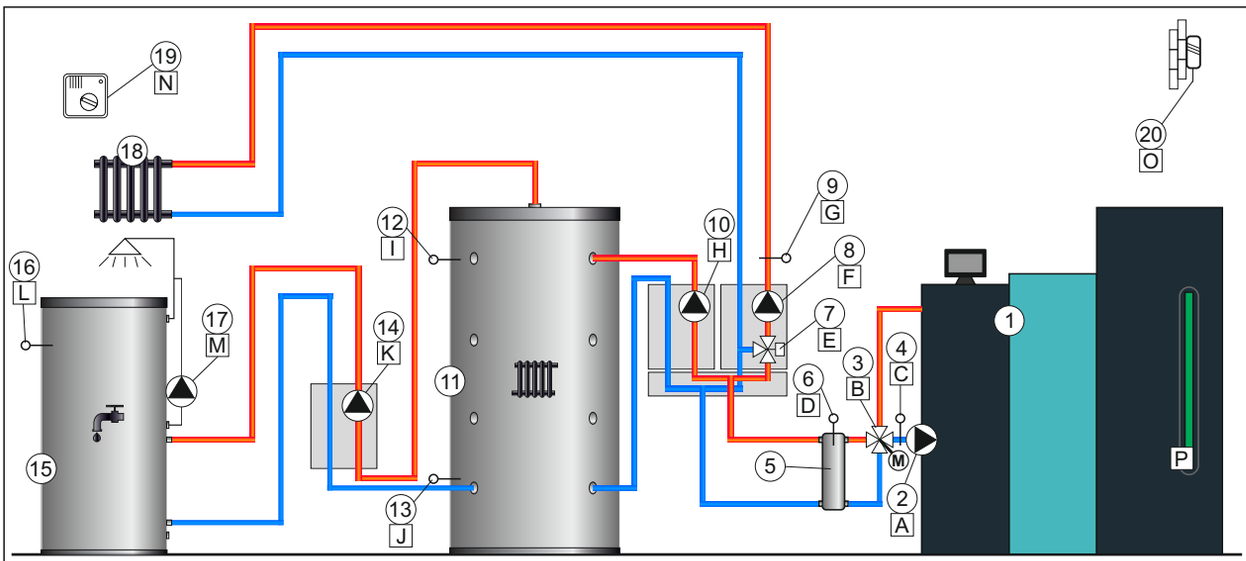


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - BUF (accumulation (buffer) tank)
11 - "CAS-B" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - (Heating circuit 2 (K2))
15 - **P4** - Recirculation DHW
16 - **(K1)** Heating circuit 1 (with mixing valve 1)
17 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
18 - **(K2)** Heating circuit 2 - (direct circuit)
19 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
20 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	S7 CRO			
E	MIX VALVE	CL1	OP1	
F	PUMPS	P1		
G	S4 Circuit 1			
H	PUMPS		P2	
I	S5 Buffer up			
J	S3 Buffer down			
K	PUMPS		P3	
L	PUMPS			P4
M	CSK 1 CSK1	1.P	2.G	3.T
M	CSK-Touch 1 CSKT	+	-	
N	CSK 2 CSK2	1.P	2.G	3.T
O	S8 Outdoor			
P	CMSR	+5V	IN2	G

CONFIGURATION 25

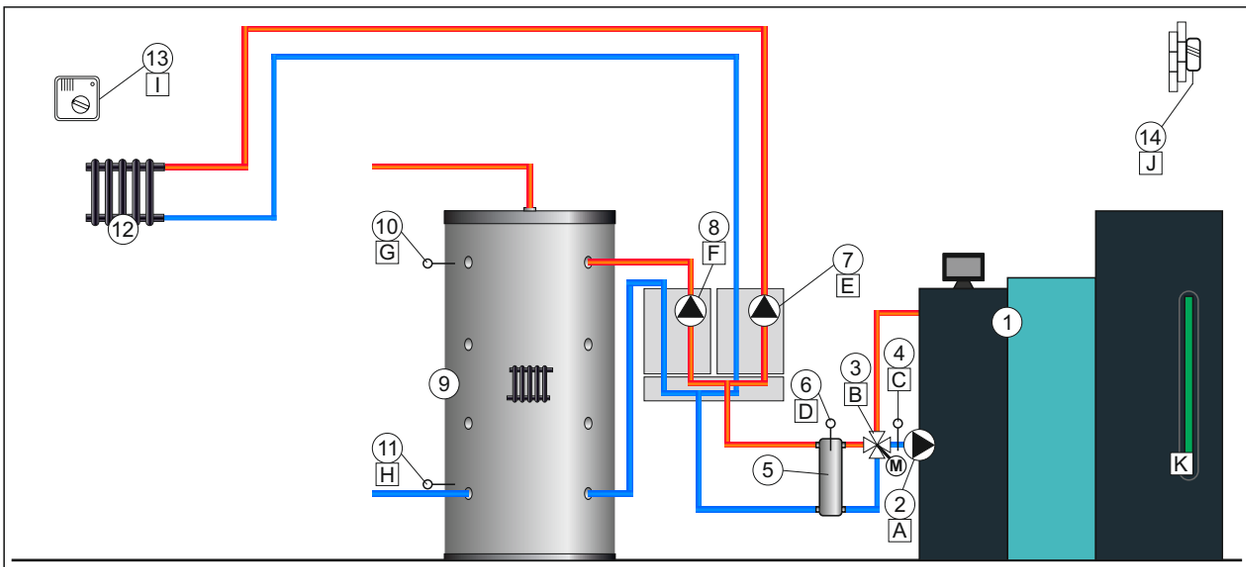


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
8 - **P1** - (Heating circuit 1 (K1))
9 - Temperature sensor ((K1) Heating circuit 1 - main flow)
10 - **P2** - BUF (accumulation (buffer) tank)
11 - "CAS" accumulation (buffer) tank
12 - Temperature sensor (UP) - accumulation (buffer) tank
13 - Temperature sensor (DOWN) - accumulation (buffer) tank
14 - **P3** - DHW (Heating circuit 2 (K2))
15 - **(K2)** Heating circuit 2 (DHW)
16 - Temperature sensor DHW ((K2) Heating circuit 2)
17 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
18 - **(K1)** Heating circuit 1 (with mixing valve 1)
19 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
20 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors									
B	MIX VALVE to connector									
C	S2 Return									
D	S7 CRO									
E	MIX VALVE	CL1	OP1							
F	PUMPS	P1								
G	S4 Circuit 1									
H	PUMPS		P2							
I	S5 Buffer up									
J	S3 Buffer down									
K	PUMPS			P3						
L	S6 Circuit 2									
M	PUMPS				P4					
N	CSK CSK1	1.P	2.G	3.T						
N	CSK-Touch CSKT	+	-							
O	S8 Outdoor									
P	CMSR	+5V	IN2	G						

CONFIGURATION 26

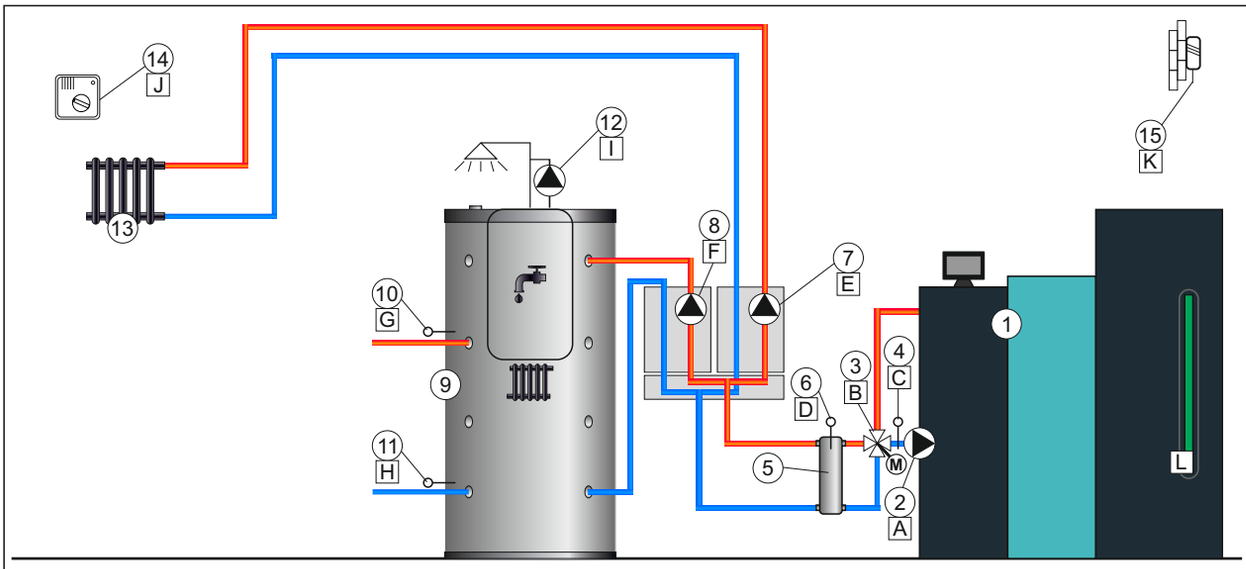


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S5 Buffer up
H	S3 Buffer down
I	CSK: CSK1 1.P 2.G 3.T
I	CSK-Touch: CSKT + -
J	S8 Outdoor
K	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - **(K1)** Heating circuit 1 - (direct circuit)
13 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
14 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 27

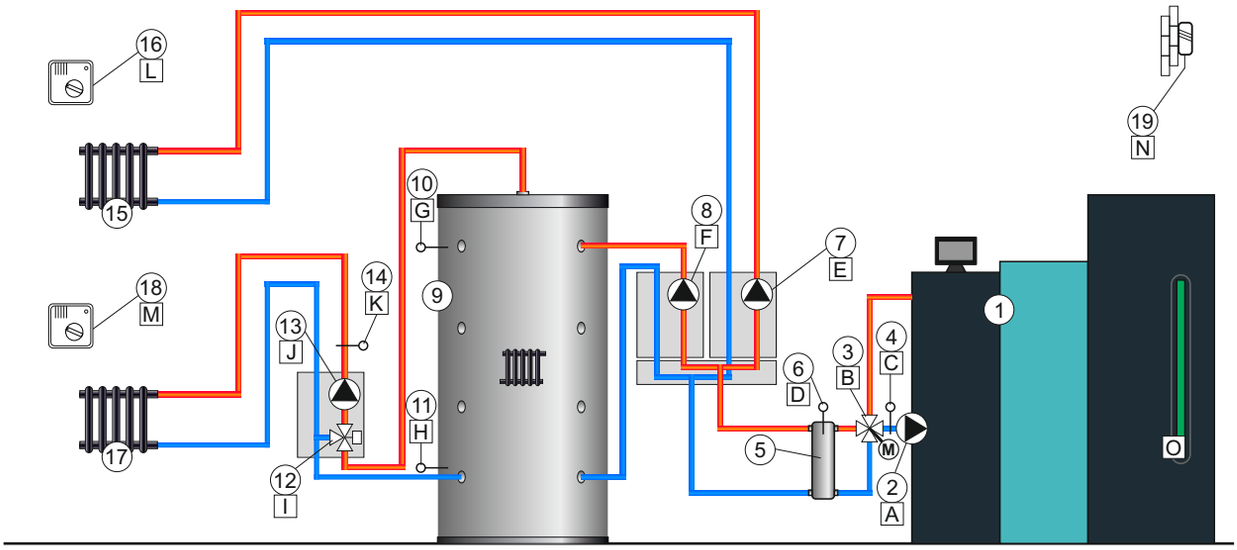


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S5 Buffer up
H	S3 Buffer down
I	PUMPS P3
J	CSK: CSK1 1.P 2.G 3.T
J	CSK-Touch: CSKT + -
K	S8 Outdoor
L	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS-B" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - **P3** - Recirculation DHW
13 - **(K1)** Heating circuit 1 - (direct circuit)
14 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
15 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 28

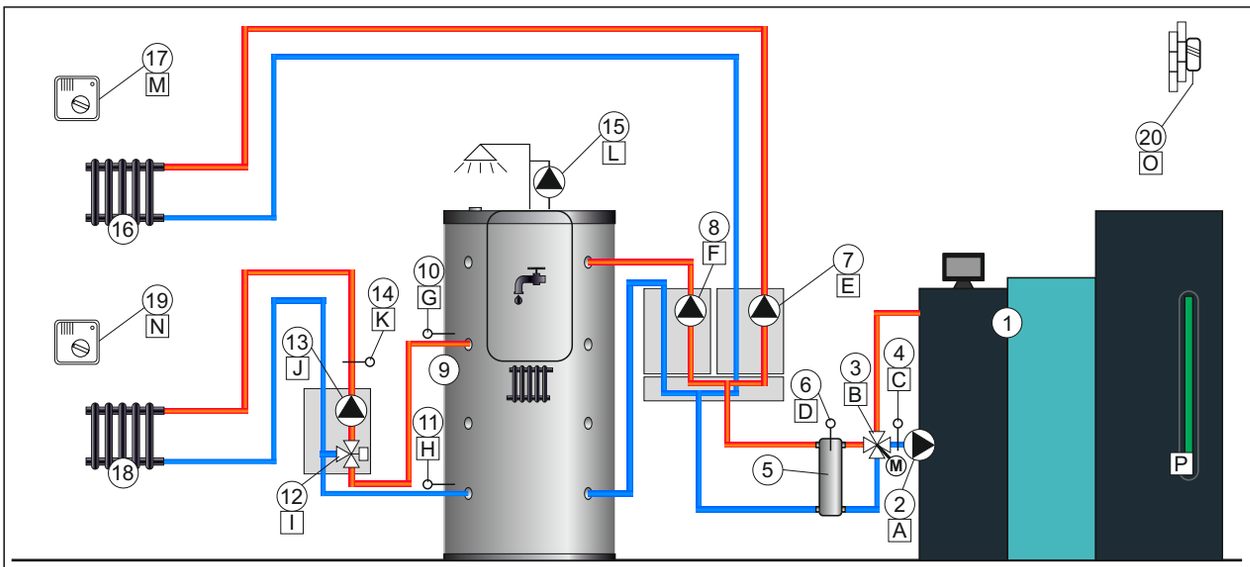


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 2 (K2))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
13 - **P3** - (Heating circuit 1 (K1))
14 - Temperature sensor ((K1) Heating circuit 1 - main flow)
15 - **(K2)** Heating circuit 2 - (direct circuit)
16 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
17 - **(K1)** Heating circuit 1 (with mixing valve 1)
18 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
19 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	S7 CRO			
E	PUMPS	P1		
F	PUMPS		P2	
G	S5 Buffer up			
H	S3 Buffer down			
I	MIX VALVE	CL1	OP1	
J	PUMPS			P3
K	S4 Circuit 1			
L	CSK 2 CSK2	1.P	2.G	3.T
M	CSK 1 CSK1	1.P	2.G	3.T
M	CSK-Touch 1 CSKT	+	-	
N	S8 Outdoor			
O	CMSR	+5V	IN2	G

CONFIGURATION 29

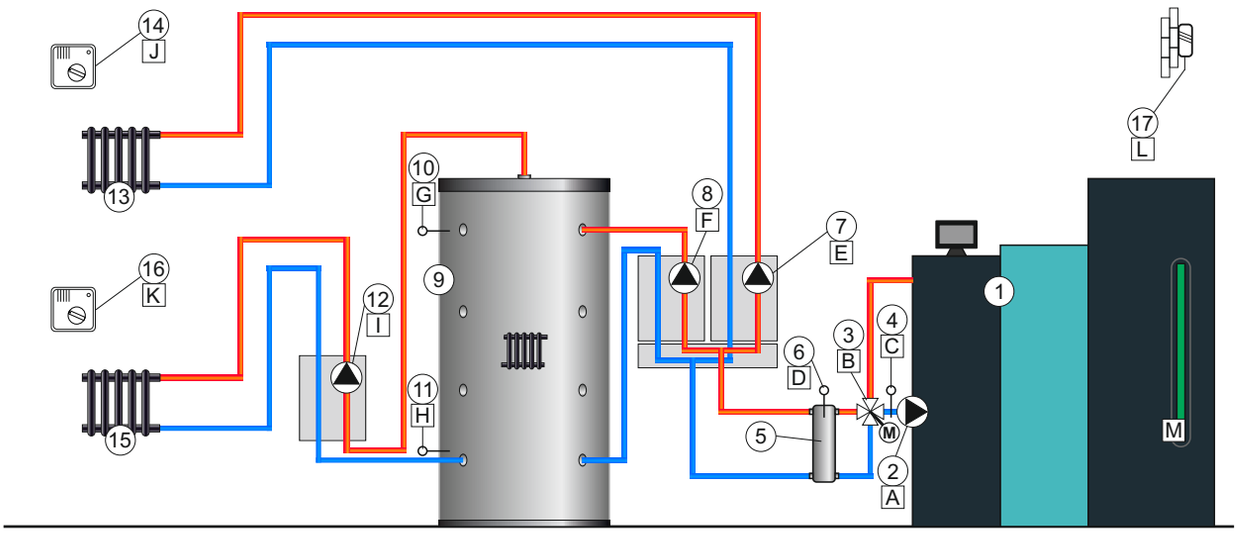


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 2 (K2))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS-B" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
13 - **P3** - (Heating circuit 1 (K1))
14 - Temperature sensor ((K1) Heating circuit 1 - main flow)
15 - **P4** - Recirculation DHW
16 - **(K2)** Heating circuit 2 - (direct circuit)
17 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
18 - **(K1)** Heating circuit 1 (with mixing valve 1)
19 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
20 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM)				
	to connectors				
B	MIX VALVE				
	to connector				
C	S2				
	Return				
D	S7				
	CRO				
E	PUMPS				
	P1				
F	PUMPS				
		P2			
G	S5				
	Buffer up				
H	S3				
	Buffer down				
I	MIX VALVE				
	CL1	OP1			
J	PUMPS				
			P3		
K	S4				
	Circuit 1				
L	PUMPS				
				P4	
	CSK 2				
M	CSK2				
	1.P	2.G	3.T		
	CSK 1				
N	CSK1				
	1.P	2.G	3.T		
	CSK-Touch 1				
N	CSKT				
	+	-			
O	S8				
	Outdoor				
P	CMSR				
	+5V	IN2	G		

CONFIGURATION 30



A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S5 Buffer up
H	S3 Buffer down
I	PUMPS P3

CSK 1

J	CSK1		
	1.P	2.G	3.T

CSK-Touch 1

J	CSKT	
	+	-

CSK 2

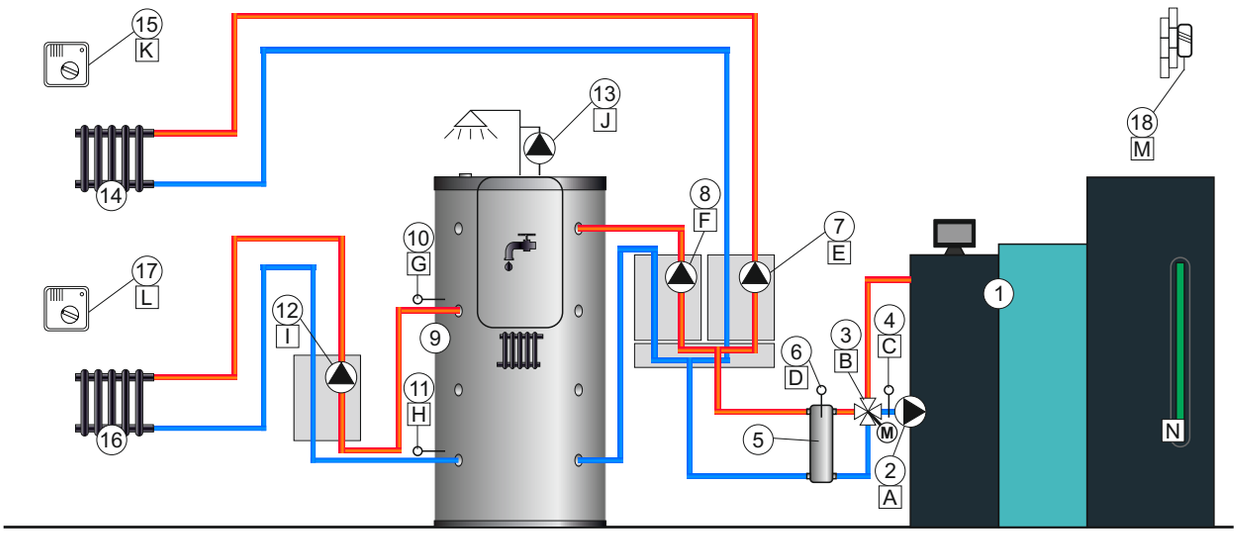
K	CSK2		
	1.P	2.G	3.T

L	S8 Outdoor		
M	CMSR		
	+5V	IN2	G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - **P3** - (Heating circuit 2 (K2))
13 - **(K1)** Heating circuit 1 - (direct circuit)
14 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
15 - **(K2)** Heating circuit 2 - (direct circuit)
16 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
17 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 31

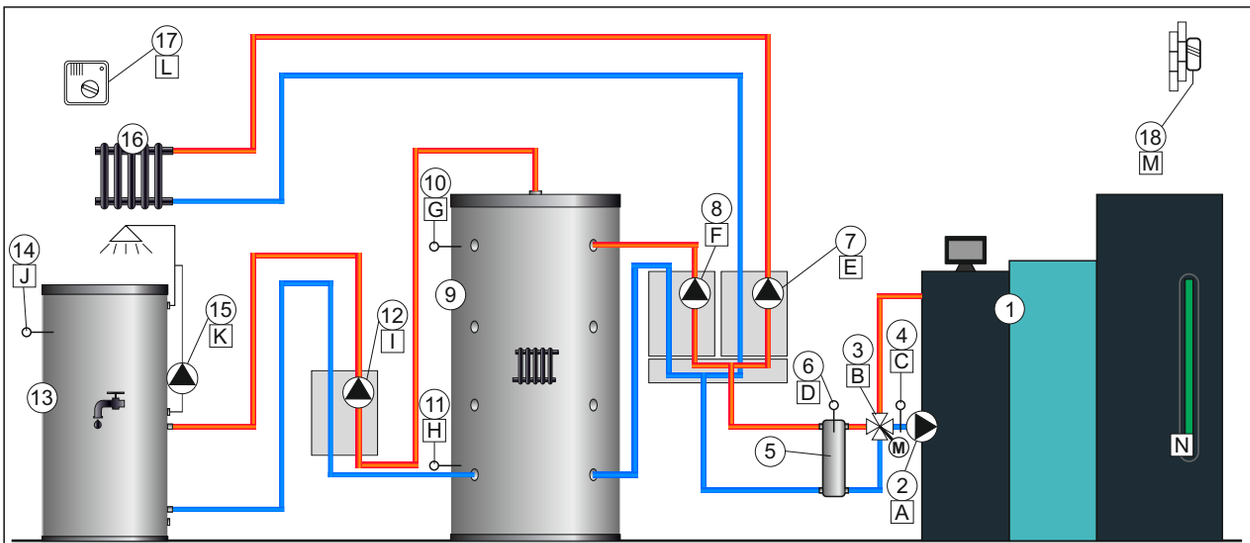


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS-B" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - **P3** - (Heating circuit 2 (K2))
13 - **P4** - Recirculation DHW
14 - **(K1)** Heating circuit 1 - (direct circuit)
15 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
16 - **(K2)** Heating circuit 2 - (direct circuit)
17 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
18 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors			
B	MIX VALVE to connector			
C	S2 Return			
D	S7 CRO			
E	PUMPS	P1		
F	PUMPS		P2	
G	S5 Buffer up			
H	S3 Buffer down			
I	PUMPS			P3
J	PUMPS			P4
K	CSK 1 CSK1	1.P	2.G	3.T
K	CSK-Touch 1 CSKT	+	-	
L	CSK 2 CSK2	1.P	2.G	3.T
M	S8 Outdoor			
N	CMSR	+5V	IN2	G

CONFIGURATION 32

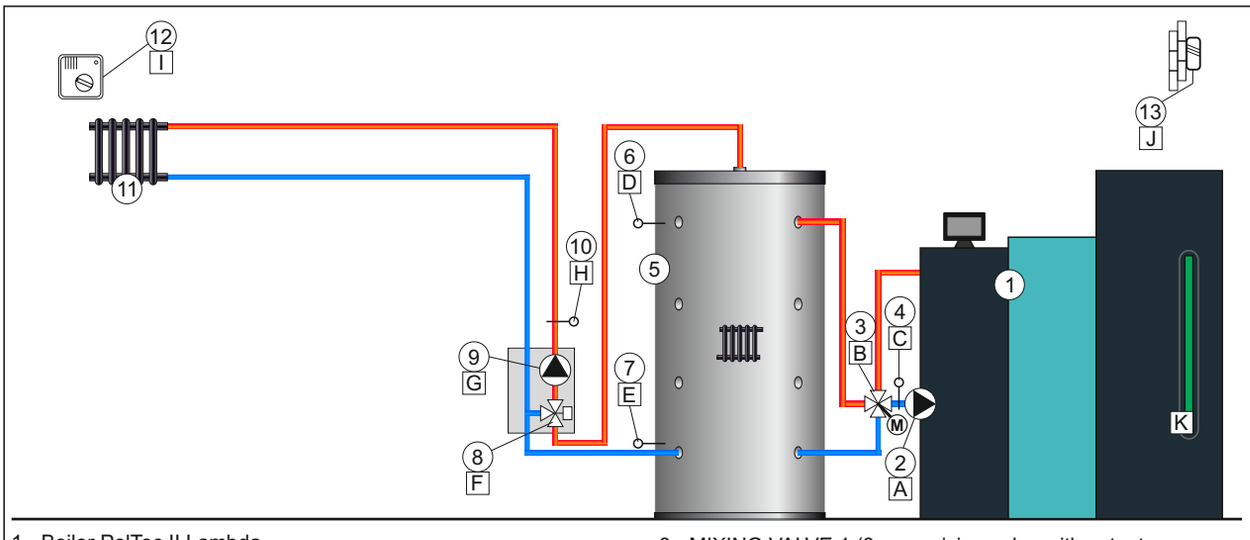


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
7 - **P1** - (Heating circuit 1 (K1))
8 - **P2** - BUF (accumulation (buffer) tank)
9 - "CAS" accumulation (buffer) tank
10 - Temperature sensor (UP) - accumulation (buffer) tank
11 - Temperature sensor (DOWN) - accumulation (buffer) tank
12 - **P3** - DHW (Heating circuit 2 (K2))
13 - **(K2)** Heating circuit 2 (DHW)
14 - Temperature sensor DHW ((K2) Heating circuit 2)
15 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
16 - **(K1)** Heating circuit 1 - (direct circuit)
17 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
18 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve and Screw refill (additional equipment).

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	PUMPS P1
F	PUMPS P2
G	S5 Buffer up
H	S3 Buffer down
I	PUMPS P3
J	S6 Circuit 2
K	PUMPS P4
L	CSK: CSK1 (1.P, 2.G, 3.T)
L	CSK-Touch: CSKT (+, -)
M	S8 Outdoor
N	CMSR (+5V, IN2, G)

CONFIGURATION 33

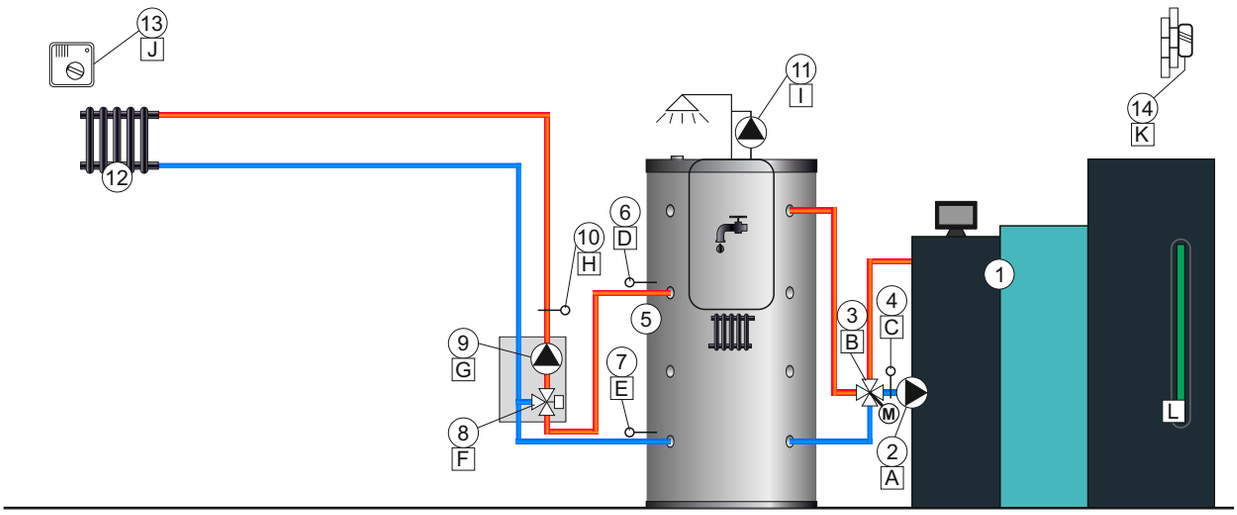


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
9 - **P1** - (Heating circuit 1 (K1))
10 - Temperature sensor ((K1) Heating circuit 1 - main flow)
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".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	MIX VALVE (CL1, OP1)
G	PUMPS P1
H	S4 Circuit 1
I	CSK: CSK1 (1.P, 2.G, 3.T)
I	CSK-Touch: CSKT (+, -)
J	S8 Outdoor
K	CMSR (+5V, IN2, G)

CONFIGURATION 34

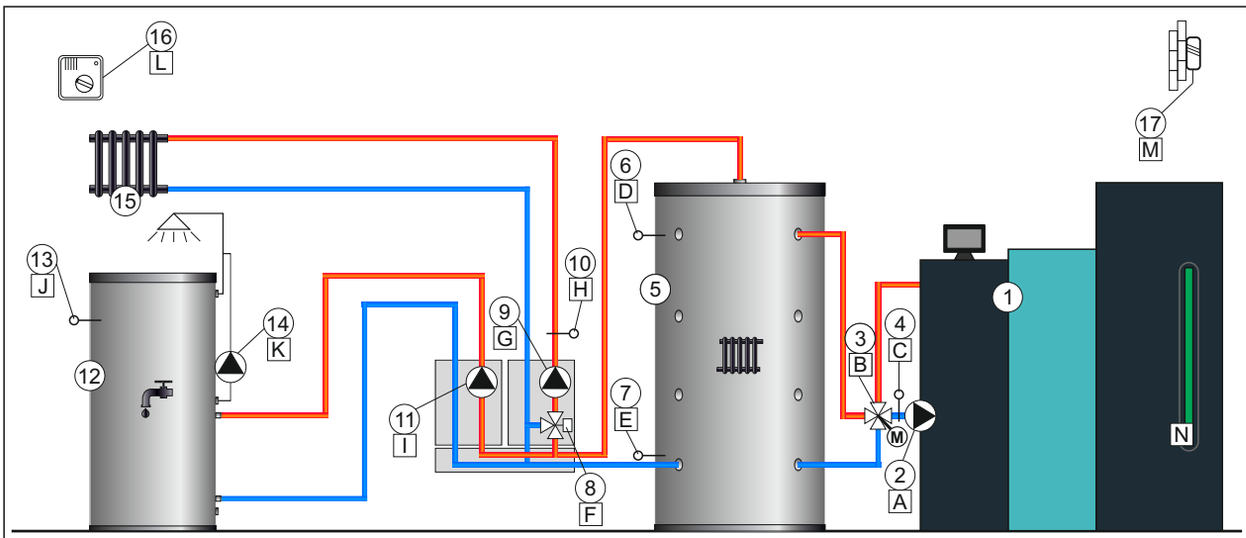


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS-B" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
9 - **P1** - (Heating circuit 1 (K1))
10 - Temperature sensor ((K1) Heating circuit 1 - main flow)
11 - **P2** - Recirculation DHW
12 - **(K1)** Heating circuit 1 (with mixing valve 1)
13 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
14 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM)			
	to connectors			
B	MIX VALVE			
	to connector			
C	S2			
	Return			
D	S5			
	Buffer up			
E	S3			
	Buffer down			
F	MIX VALVE			
	CL1	OP1		
G	PUMPS			
	P1			
H	S4			
	Circuit 1			
I	PUMPS			
		P2		
	CSK			
J	CSK1			
	1.P	2.G	3.T	
	CSK-Touch			
J	CSKT			
	+	-		
K	S8			
	Outdoor			
L	CMSR			
	+5V	IN2	G	

CONFIGURATION 35

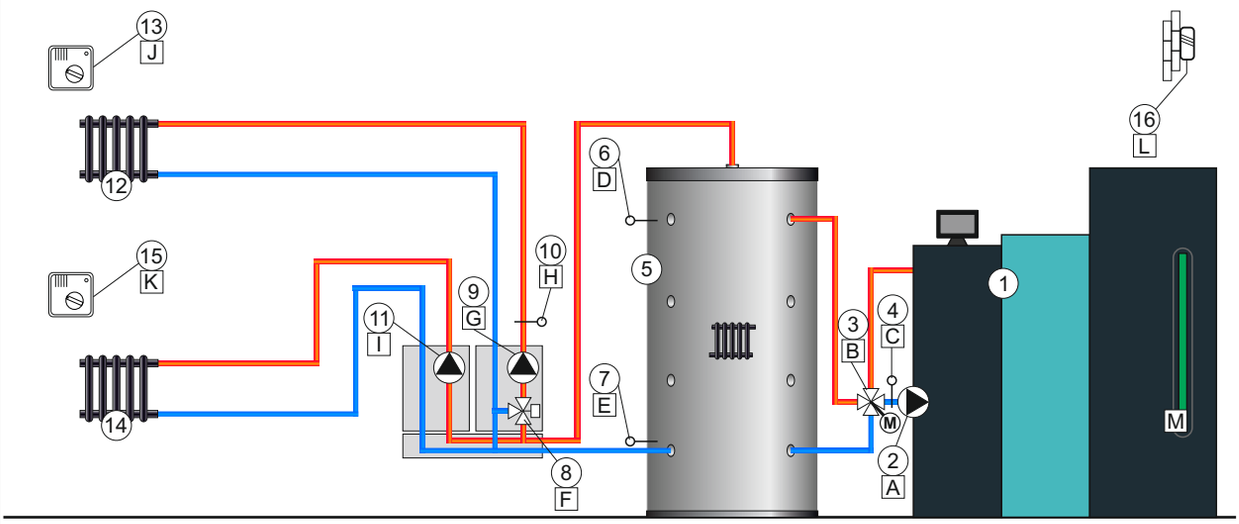


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
9 - **P1** - (Heating circuit 1 (K1))
10 - Temperature sensor ((K1) Heating circuit 1 - main flow)
11 - **P2** - DHW (Heating circuit 2 (K2))
12 - **(K2)** Heating circuit 2 (DHW)
13 - Temperature sensor DHW ((K2) Heating circuit 2)
14 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
15 - **(K1)** Heating circuit 1 (with mixing valve 1)
16 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
17 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM)			
	to connectors			
B	MIX VALVE			
	to connector			
C	S2			
	Return			
D	S5			
	Buffer up			
E	S3			
	Buffer down			
F	MIX VALVE			
	CL1	OP1		
G	PUMPS			
	P1			
H	S4			
	Circuit 1			
I	PUMPS			
		P2		
J	S6			
	Circuit 2			
K	PUMPS			
			P3	
	CSK			
L	CSK1			
	1.P	2.G	3.T	
	CSK-Touch			
L	CSKT			
	+	-		
M	S8			
	Outdoor			
N	CMSR			
	+5V	IN2	G	

CONFIGURATION 36

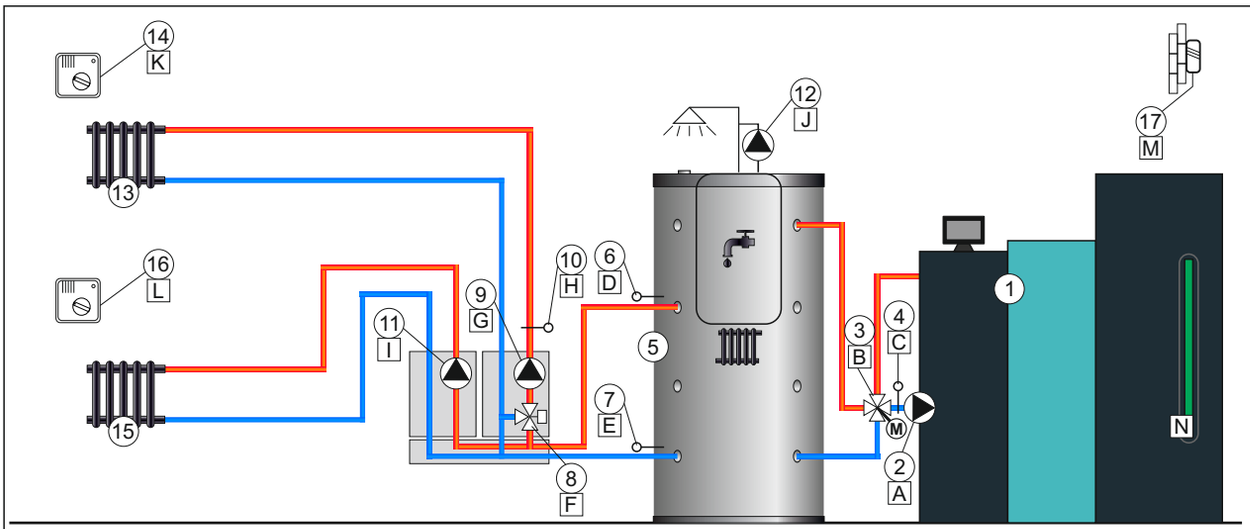


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
9 - **P1** - (Heating circuit 1 (K1))
10 - Temperature sensor ((K1) Heating circuit 1 - main flow)
11 - **P2** - (Heating circuit 2 (K2))
12 - **(K1)** Heating circuit 1 (with mixing valve 1)
13 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
14 - **(K2)** Heating circuit 2 - (direct circuit)
15 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
16 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM)			
	to connectors			
B	MIX VALVE			
	to connector			
C	S2			
	Return			
D	S5			
	Buffer up			
E	S3			
	Buffer down			
F	MIX VALVE			
	CL1	OP1		
G	PUMPS			
	P1			
H	S4			
	Circuit 1			
I	PUMPS			
		P2		
	CSK 1			
J	CSK1			
	1.P	2.G	3.T	
	CSK-Touch 1			
J	CSKT			
	+		-	
	CSK 2			
K	CSK2			
	1.P	2.G	3.T	
L	S8			
	Outdoor			
M	CMSR			
	+5V	IN2	G	

CONFIGURATION 37

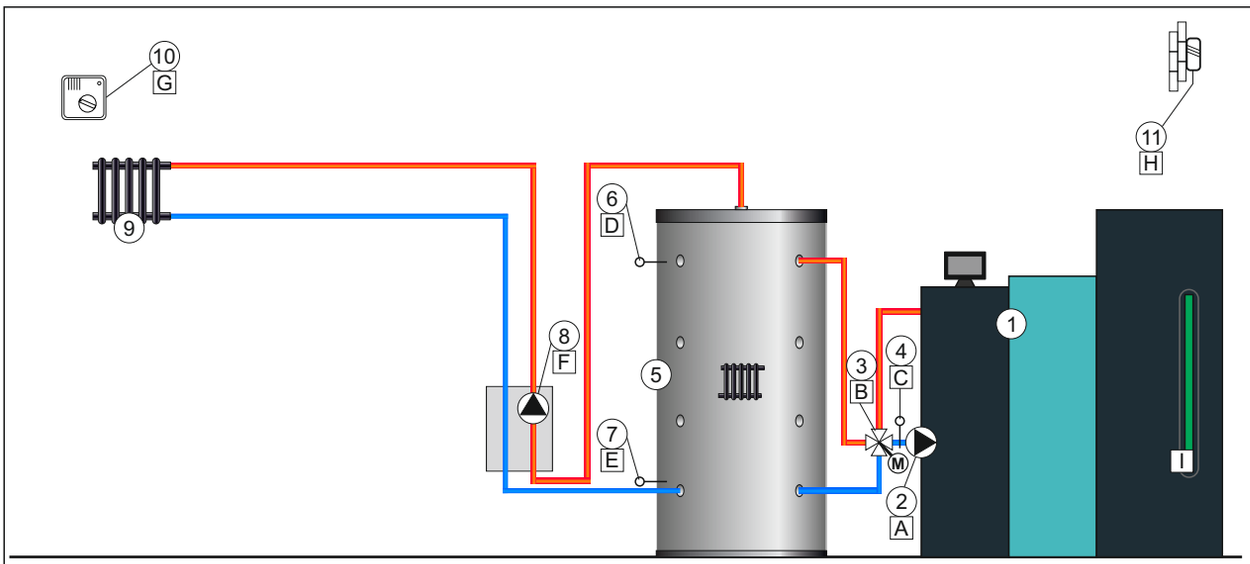


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	MIX VALVE CL1 OP1
G	PUMPS P1
H	S4 Circuit 1
I	PUMPS P2
J	PUMPS P3
K	CSK 1: CSK1 1.P 2.G 3.T
K	CSK-Touch 1: CSKT + -
L	CSK 2: CSK2 1.P 2.G 3.T
M	S8 Outdoor
N	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - MIXING VALVE 1 (3-way mixing valve with actuator - heating circuit 1 (K1))
9 - **P1** - (Heating circuit 1 (K1))
10 - Temperature sensor ((K1) Heating circuit 1 - main flow)
11 - **P2** - (Heating circuit 2 (K2))
12 - **P3** - Recirculation DHW
13 - **(K1)** Heating circuit 1 (with mixing valve 1)
14 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
15 - **(K2)** Heating circuit 2 - (direct circuit)
16 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
17 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 38

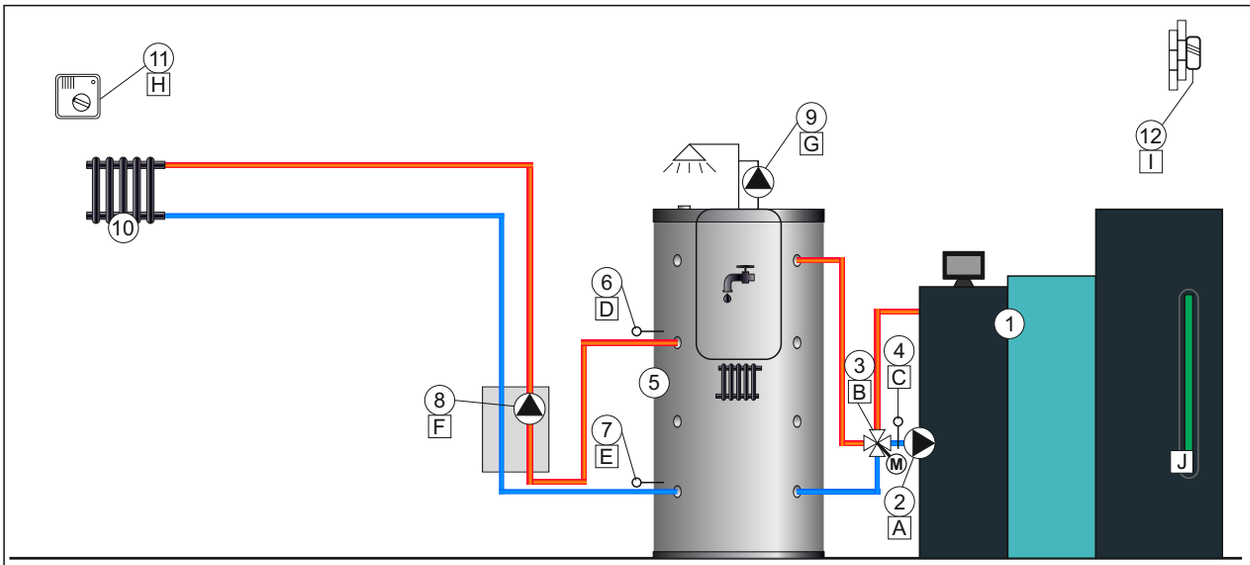


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS: P1
G	CSK: CSK1 — 1.P, 2.G, 3.T
G	CSK-Touch: CSKT — +, -
H	S8 Outdoor
I	CMSR: +5V, IN2, G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - (Heating circuit 1 (K1))
9 - **(K1)** Heating circuit 1 - (direct circuit)
10 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
11 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 39

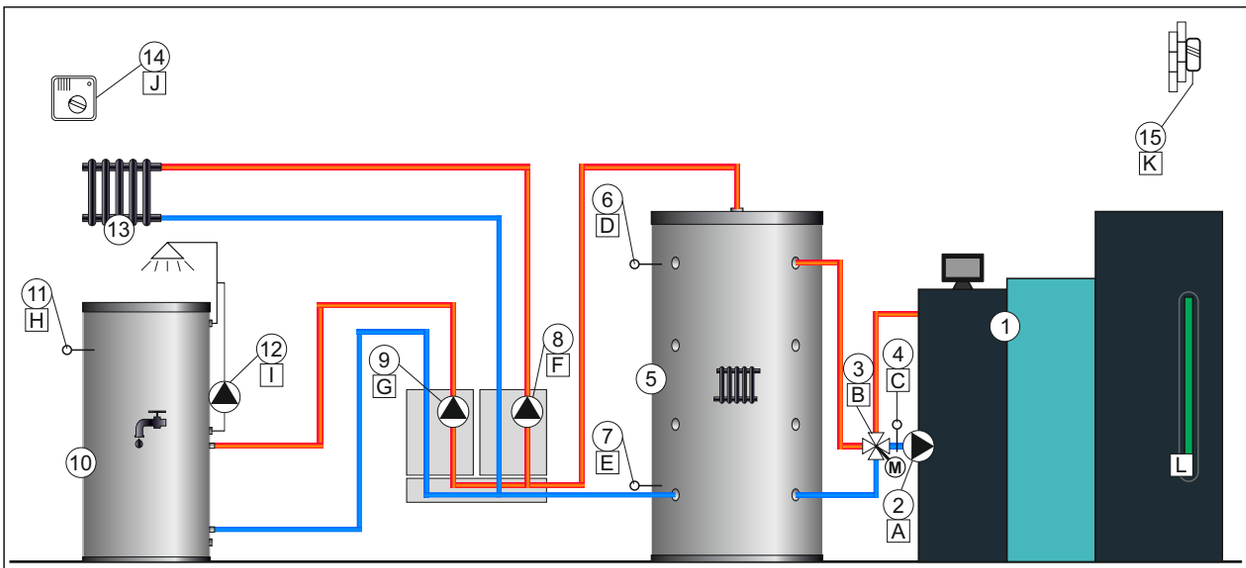


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS: P1
G	PUMPS: P2
H	CSK: CSK1 — 1.P, 2.G, 3.T
H	CSK-Touch: CSKT — +, -
I	S8 Outdoor
J	CMSR: +5V, IN2, G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - (Heating circuit 1 (K1))
9 - **P2** - Recirculation DHW
10 - **(K1)** Heating circuit 1 - (direct circuit)
11 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
12 - Outdoor temperature sensor

Note:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

CONFIGURATION 40

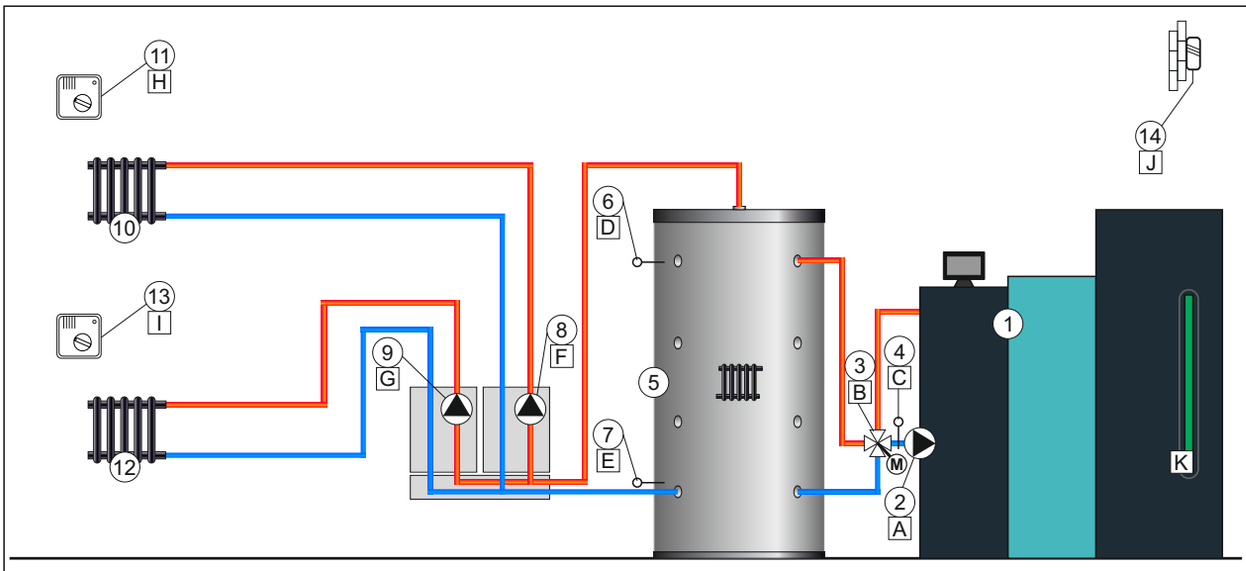


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - **P1** - (Heating circuit 1 (K1))
9 - **P2** - DHW (Heating circuit 2 (K2))
10 - **(K2)** Heating circuit 2 (DHW)
11 - Temperature sensor DHW ((K2) Heating circuit 2)
12 - **P3** - Recirculation DHW (Heating circuit 2 (K2))
13 - **(K1)** Heating circuit 1 - (direct circuit)
14 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
15 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	PUMPS P2
H	S6 Circuit 2
I	PUMPS P3
J	CSK CSK1 1.P 2.G 3.T
J	CSK-Touch CSKT + -
K	S8 Outdoor
L	CMSR +5V IN2 G

CONFIGURATION 41

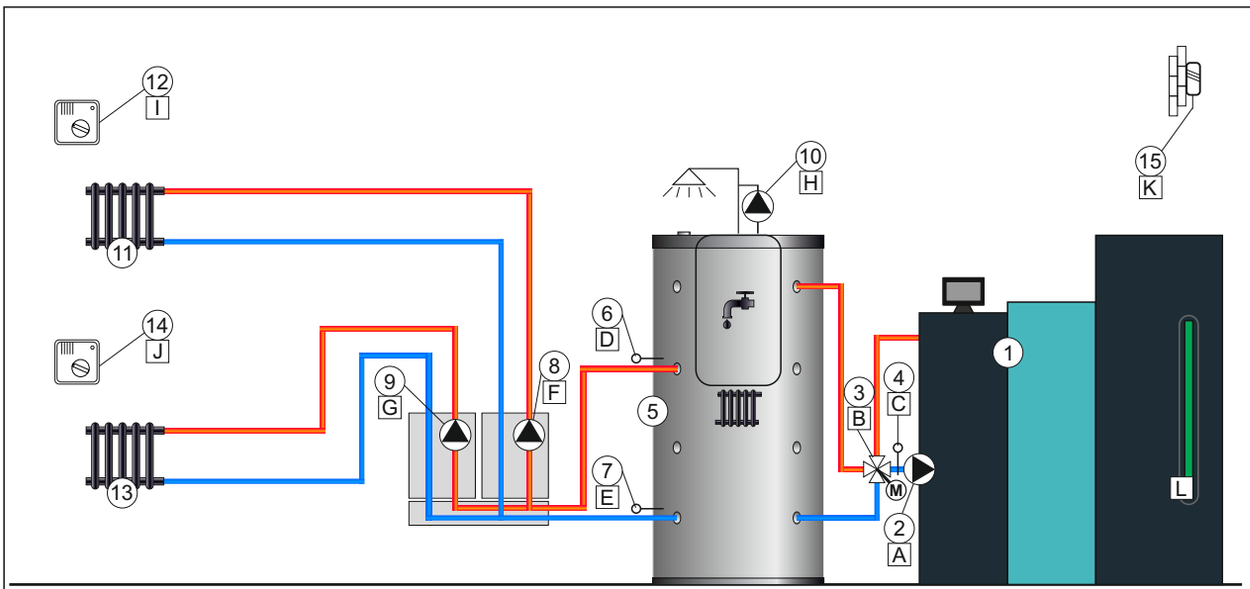


1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - "CAS" accumulation (buffer) tank
6 - Temperature sensor (UP) - accumulation (buffer) tank
7 - Temperature sensor (DOWN) - accumulation (buffer) tank
8 - **P1** - (Heating circuit 1 (K1))
9 - **P2** - (Heating circuit 2 (K2))
10 - **(K1)** Heating circuit 1 - (direct circuit)
11 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
12 - **(K2)** Heating circuit 2 - (direct circuit)
13 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
14 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.

A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	PUMPS P2
H	CSK 1 CSK1 1.P 2.G 3.T
H	CSK-Touch 1 CSKT + -
I	CSK 2 CSK2 1.P 2.G 3.T
J	S8 Outdoor
K	CMSR +5V IN2 G

CONFIGURATION 42

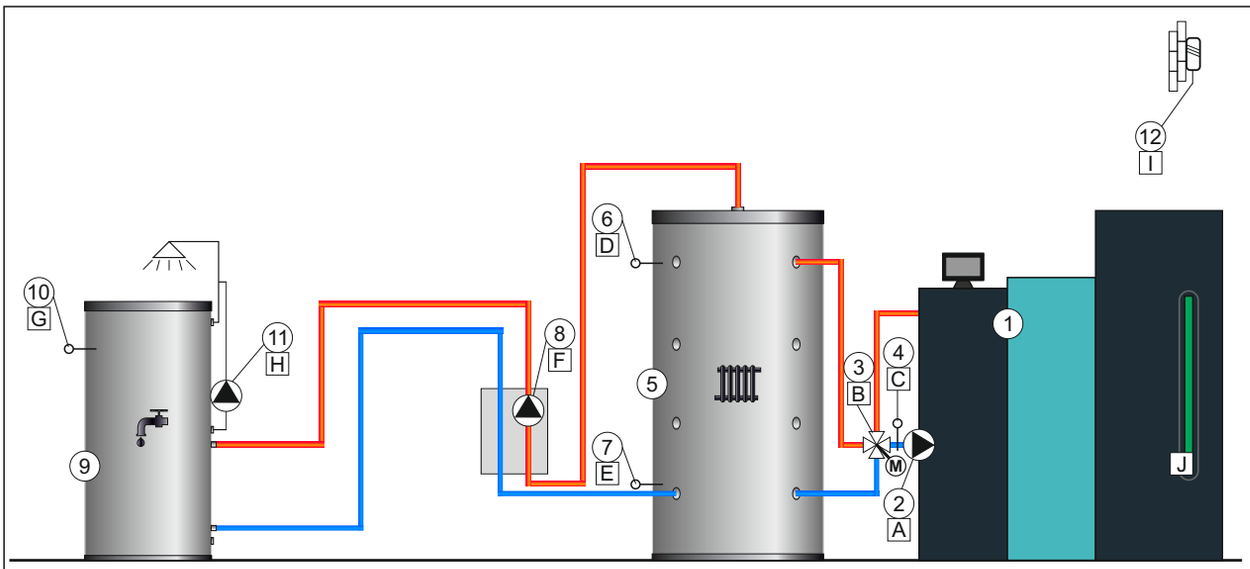


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	PUMPS P2
H	PUMPS P3
I	**CSK 1** CSK1 1.P 2.G 3.T
I	**CSK-Touch 1** CSKT + -
J	**CSK 2** CSK2 1.P 2.G 3.T
K	S8 Outdoor
L	CMSR +5V IN2 G

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - (Heating circuit 1 (K1))
9 - **P2** - (Heating circuit 2 (K2))
10 - **P3** - Recirculation DHW
11 - **(K1)** Heating circuit 1 - (direct circuit)
12 - Room corrector CSK 1 ((K1) heating circuit 1) / CSK-Touch / Room thermostat
13 - **(K2)** Heating circuit 2 - (direct circuit)
14 - Room corrector CSK 2 ((K2) heating circuit 2) / CSK-Touch / Room thermostat
15 - Outdoor temperature sensor

Notes:
- in this configuration is possible to connect up to 3 unit "CM2K module for regulation 2 heating circuits".
- the first CSK-Touch can be connected to the boiler wired or wirelessly, the second CSK-Touch can only be connected wirelessly.
- in this configuration, it is not possible to use Rotary valve or Screw refill (additional equipment).

CONFIGURATION 43

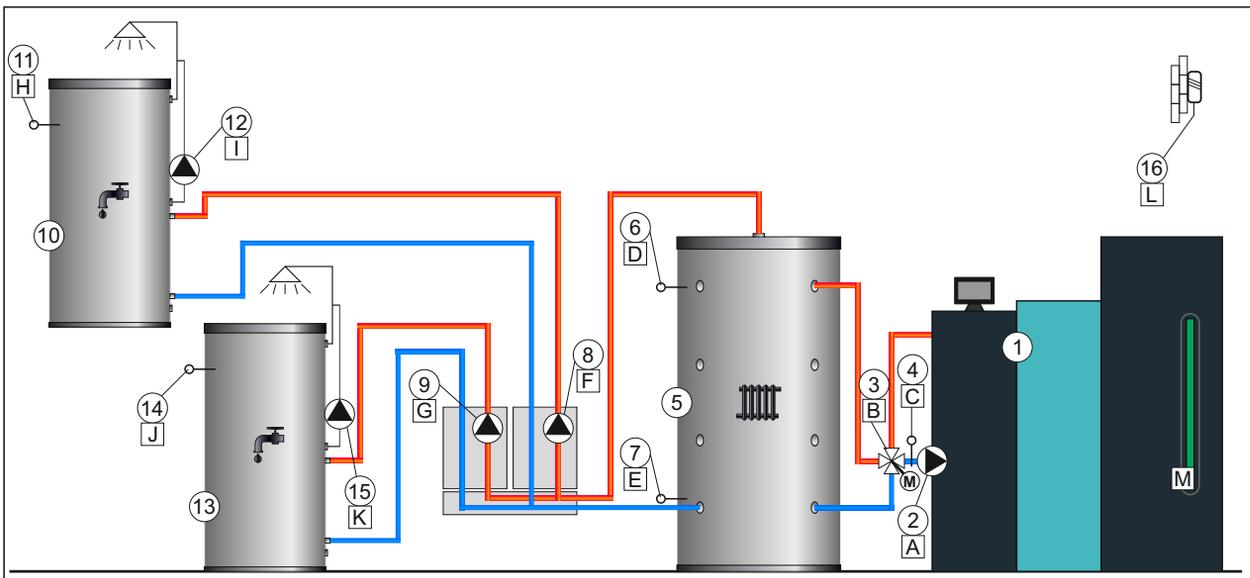


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	S4 Circuit 1
H	PUMPS P2
I	S8 Outdoor
J	CMSR +5V IN2 G
*	**CSK-Touch** CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - DHW (Heating circuit 1 (K1))
9 - **(K1)** Heating circuit 1 (DHW)
10 - Temperature sensor DHW ((K1) Heating circuit 1)
11 - **P2** - 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 44

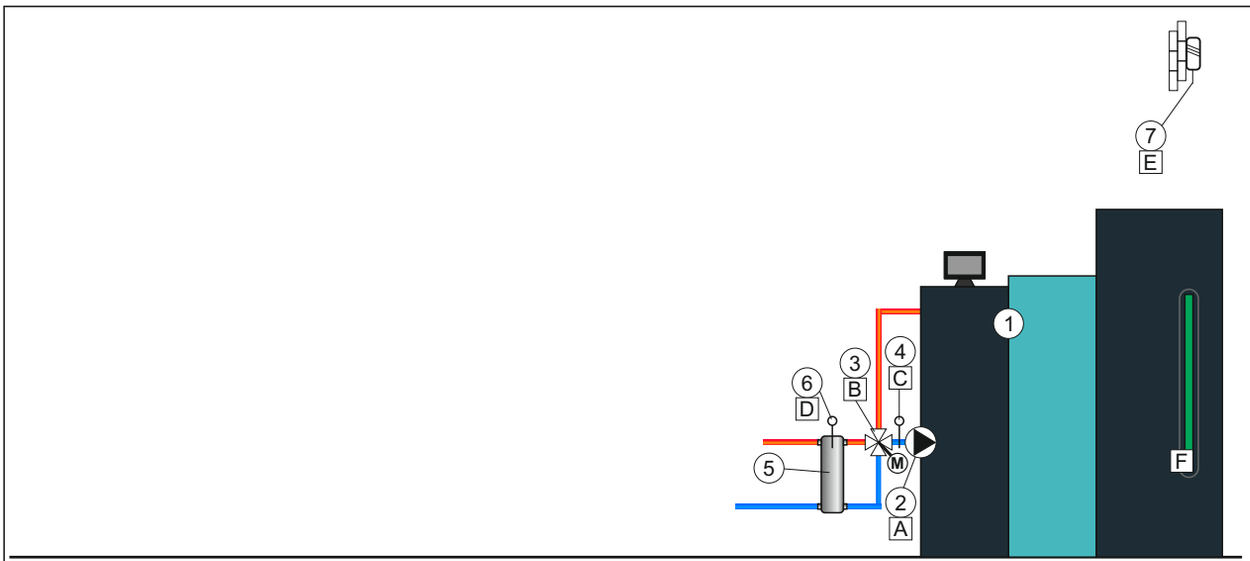


A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S5 Buffer up
E	S3 Buffer down
F	PUMPS P1
G	PUMPS P2
H	S4 Circuit 1
I	PUMPS P3
J	S6 Circuit 2
K	PUMPS P4
L	S8 Outdoor
M	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
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 - **P1** - DHW (Heating circuit 1 (K1))
9 - **P2** - DHW (Heating circuit 2 (K2))
10 - **(K1)** Heating circuit 1 (DHW)
11 - Temperature sensor DHW ((K1) Heating circuit 1)
12 - **P3** - Recirculation DHW (Heating circuit 1 (K1))
13 - **(K2)** Heating circuit 2 (DHW)
14 - Temperature sensor DHW ((K2) Heating circuit 2)
15 - **P4** - Recirculation DHW (Heating circuit 2 (K2))
16 - 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, it is not possible to use Rotary valve and Screw refill (additional equipment).
* in this configuration is possible to connect CSK-Touch (additional equipment) only if CM2K is installed.

CONFIGURATION 45



A	P(PWM) to connectors
B	MIX VALVE to connector
C	S2 Return
D	S7 CRO
E	S8 Outdoor
F	CMSR +5V IN2 G
	CSK-Touch
*	CSKT + -

1 - Boiler PelTec II Lambda
2 - **P(PWM)** - (Boiler circuit)
3 - MIXING VALVE (4-way mixing valve with actuator - boiler circuit)
4 - Temperature sensor (boiler circuit - return flow)
5 - Hydraulic crossover
6 - Temperature sensor (Hydraulic crossover)
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.

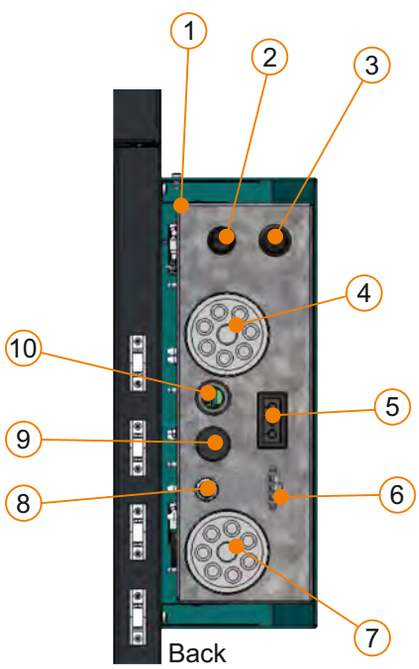
5.0. ELECTRICAL CONNECTIONS

All electrical works must be performed by a certified professional in accordance with valid national and European standards. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. A device for switching of all power supply poles must be installed in electrical installation in accordance with the national regulations on electrical installations. Pump of heating system should be connected to boiler control unit PelTec II Lambda.

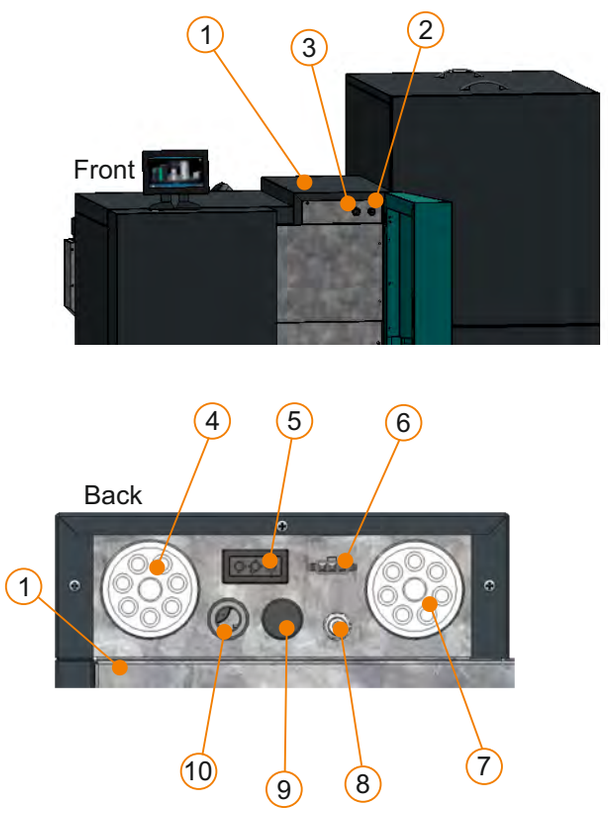
CAUTION: When connecting any electrical part be sure to unplug the boiler at the main switch and disconnect the power supply.

Figure 4. Boiler control unit box (Switches, power connectors, cable grommets/glands)

12 kW / 18 kW



24 kW - 48 kW



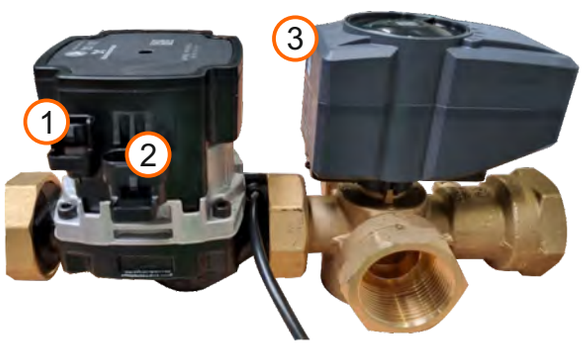
1 - Boiler control unit box
2 - Safety thermostat (STB)
3 - MAIN SWITCH (0/1)
4 - CABLE GROMMETS - Devices (230 V)
5 - Screw feeder
6 - Connector - Pellet level in the tank
7 - CABLE GROMMETS - Sensors/Room thermostat/Alarm (low-voltage or no-voltage conductors)
8 - CABLE GROMMETS - Guides for the lambda probe
9 - CABLE GROMMET - UTP cable (connection of additional equipment)
10 - CABLE GROMMETS - Fan

Figure 5. Connectors / cables with connectors that must be connected when installing the boiler.

1 PWM (cable + connector)
for connecting a PWM pump

2 (cable + connector)
230 V for connection to the PWM pump

3 (cable + connector) for connection to the motor actuator of the 4-way mixing valve



4 (cable + connector)
for connection to the fan

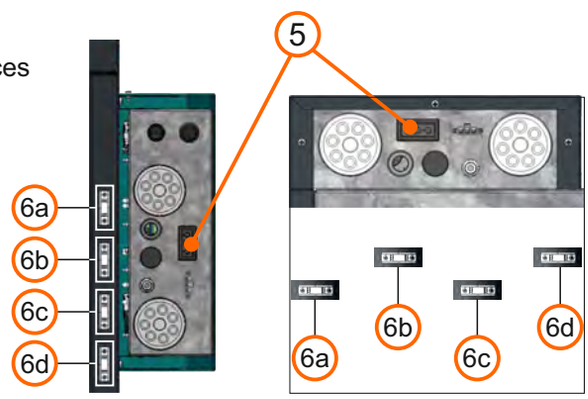
5 connector for connecting the screw feeder
(on the boiler controller box)

6a - Cable holder - Boiler power supply 230 V, electric devices (230 V conductors) (installed by authorized technician only)

6b - Cable holder - Electric devices (230 V conductors) (factory installed/installed by authorized technician only)

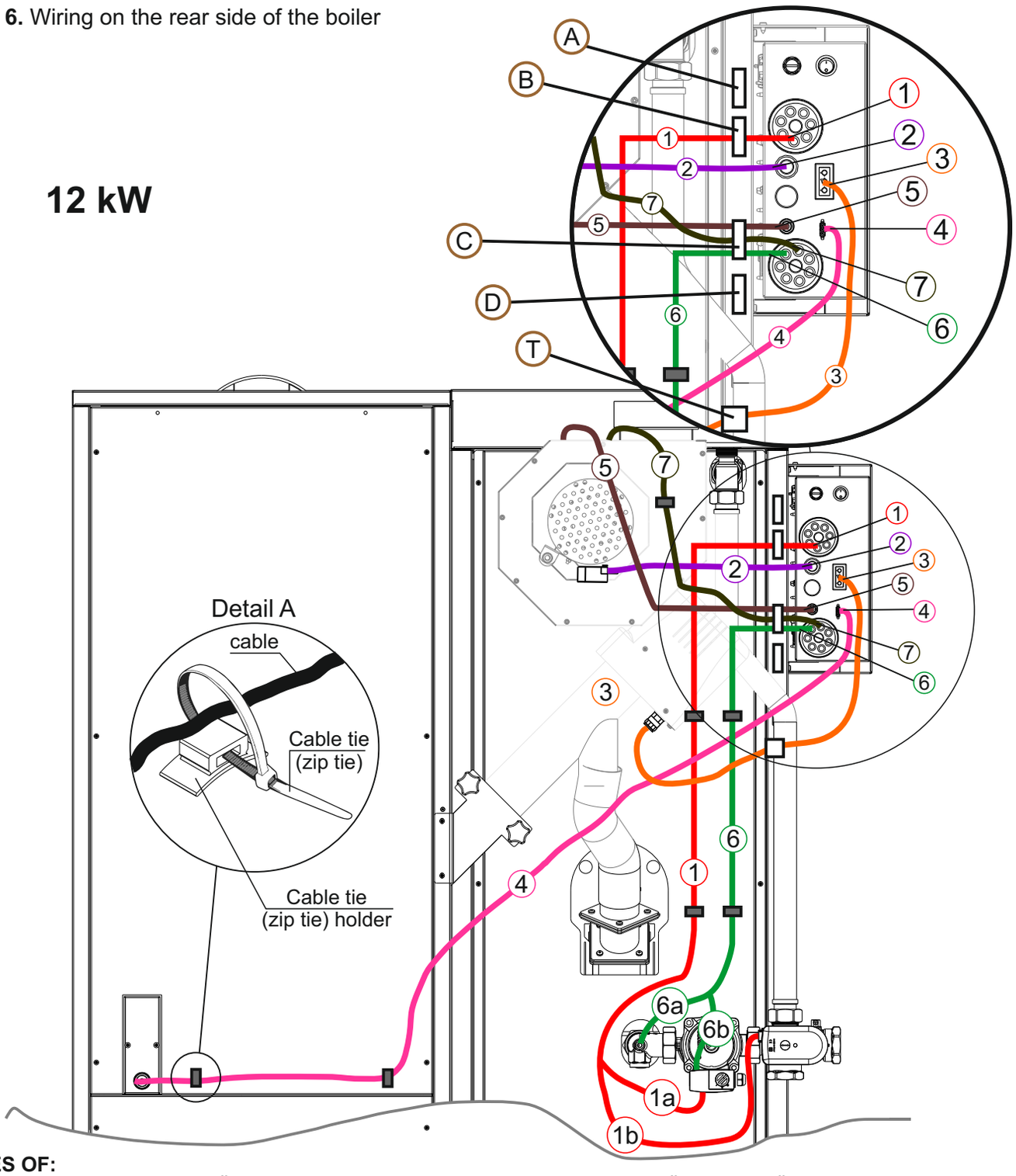
6c - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (installed by authorized technician only)

6d - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (factory installed/installed by authorized technician only)



12kW / 18kW **24kW - 48kW**

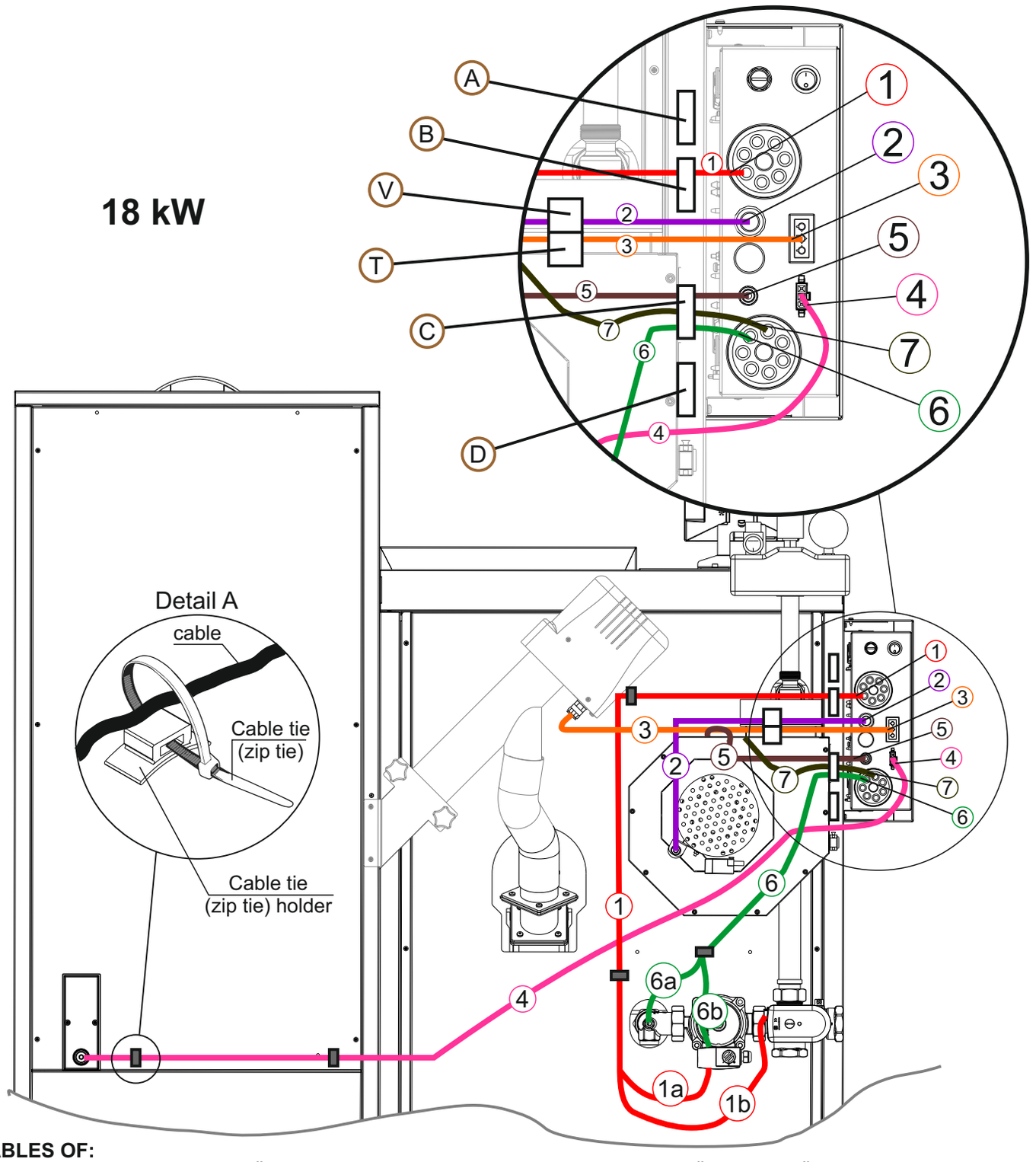
Figure 6. Wiring on the rear side of the boiler



CABLES OF:
1a - PWM pump - 230 V cable ‖ **1b -** Actuator motor of the 4-way mixing valve ‖ **2 -** Fan ‖
3 - Screw feeder (transporter) ‖ **4 -** Pellet level sensor (installed by authorized technician only) ‖ **5 -** Lambda probe ‖
6a - Return flow (sensor) ‖ **6b -** PWM pump - PWM cable ‖ **7 -** Flue gas temperature sensor

CABLE HOLDERS:
A - Cable holder - Boiler power supply 230 V, electric devices (230 V conductors) (installed by authorized technician only)
B - Cable holder - Electric devices (230 V conductors) (factory installed/installed by authorized technician only)
C - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (installed by authorized technician only)
D - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (factory installed/installed by authorized technician only)
T - Screw feeder (transporter) cable holder

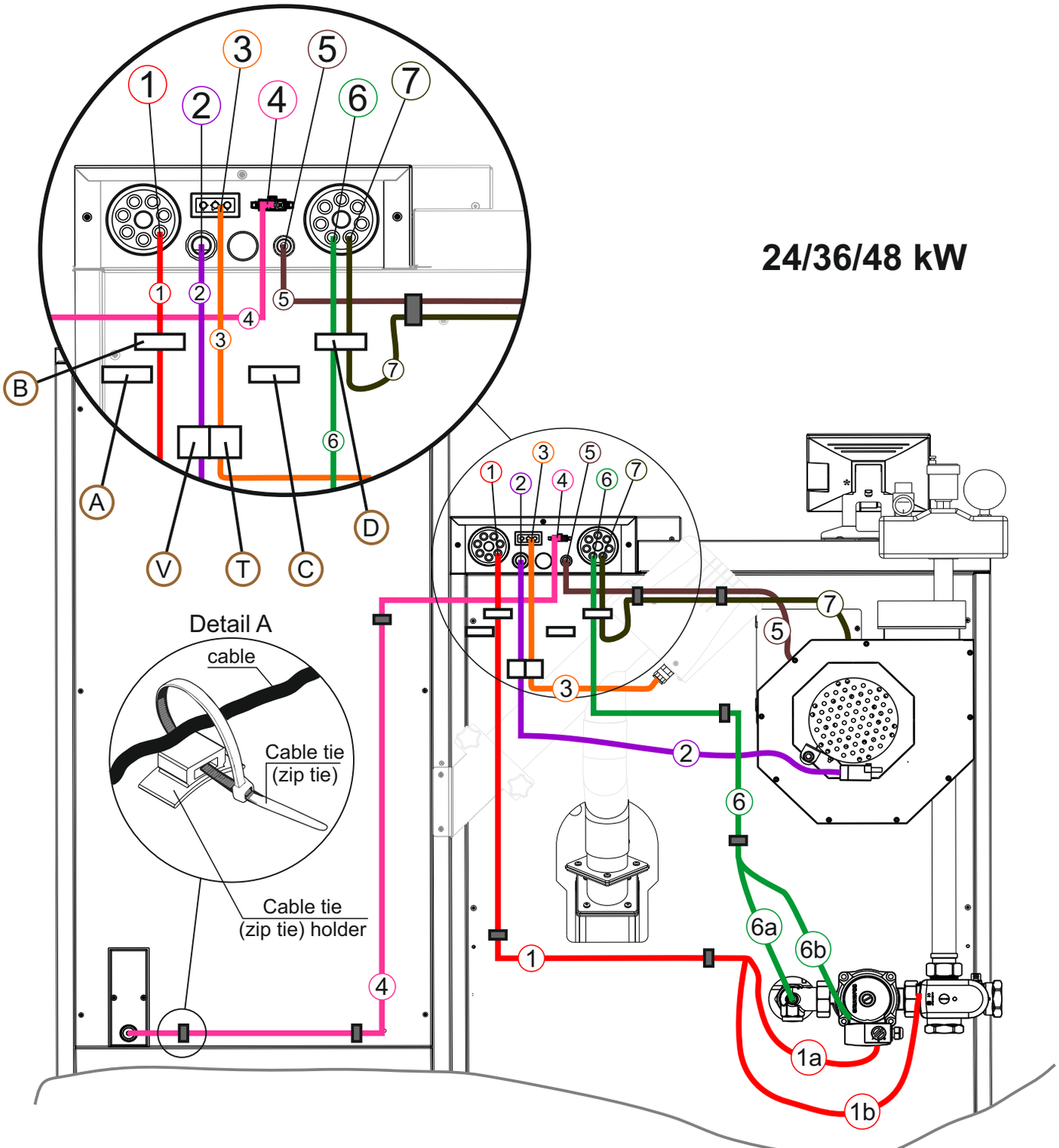
▮ - Cable tie (zip tie) (detail A)



CABLES OF:
1a - PWM pump - 230 V cable ‖ **1b -** Actuator motor of the 4-way mixing valve ‖ **2 -** Fan ‖ **3 -** Screw feeder (transporter) ‖ **4 -** Pellet level sensor (installed by authorized technician only) ‖ **5 -** Lambda probe ‖ **6a -** Return flow (sensor) ‖ **6b -** PWM pump - PWM cable ‖ **7 -** Flue gas temperature sensor

CABLE HOLDERS:
A - Cable holder - Boiler power supply 230 V, electric devices (230 V conductors) (installed by authorized technician only)
B - Cable holder - Electric devices (230 V conductors) (factory installed/installed by authorized technician only)
C - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (installed by authorized technician only)
D - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (factory installed/installed by authorized technician only)
V - Fan cable holder ‖ **T -** Screw feeder (transporter) cable holder

▮ - Cable tie (zip tie) (detail A)



CABLES OF:
1a - PWM pump - 230 V cable ‖ **1b -** Actuator motor of the 4-way mixing valve ‖ **2 -** Fan ‖
3 - Screw feeder (transporter) ‖ **4 -** Pellet level sensor (installed by authorized technician only) ‖ **5 -** Lambda probe ‖
6a - Return flow (sensor) ‖ **6b -** PWM pump - PWM cable ‖ **7 -** Flue gas temperature sensor

CABLE HOLDERS:
A - Cable holder - Boiler power supply 230 V, electric devices (230 V conductors) (installed by authorized technician only)
B - Cable holder - Electric devices (230 V conductors) (factory installed/installed by authorized technician only)
C - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (installed by authorized technician only)
D - Cable holder - Sensors/Room thermostat/Alarm (low voltage or no voltage conductors) (factory installed/installed by authorized technician only)
V - Fan cable holder ‖ **T -** Screw feeder (transporter) cable holder
▮ - Cable tie (zip tie) (detail A)

Figure 7. Fixing the cables in the controller box

All input/output cables (230 V and low voltage) must be fastened in the "Place for fixing of input/output cables".

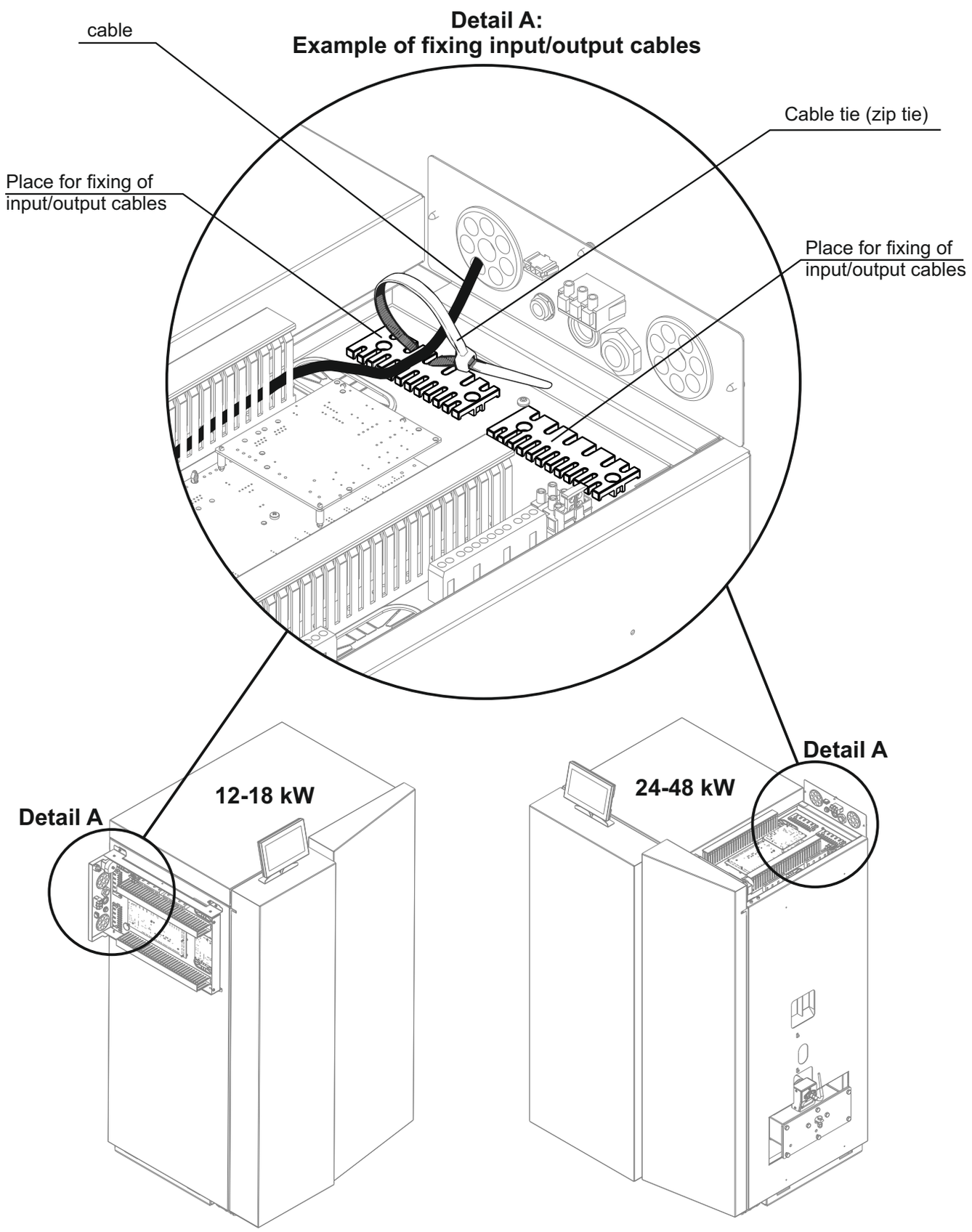
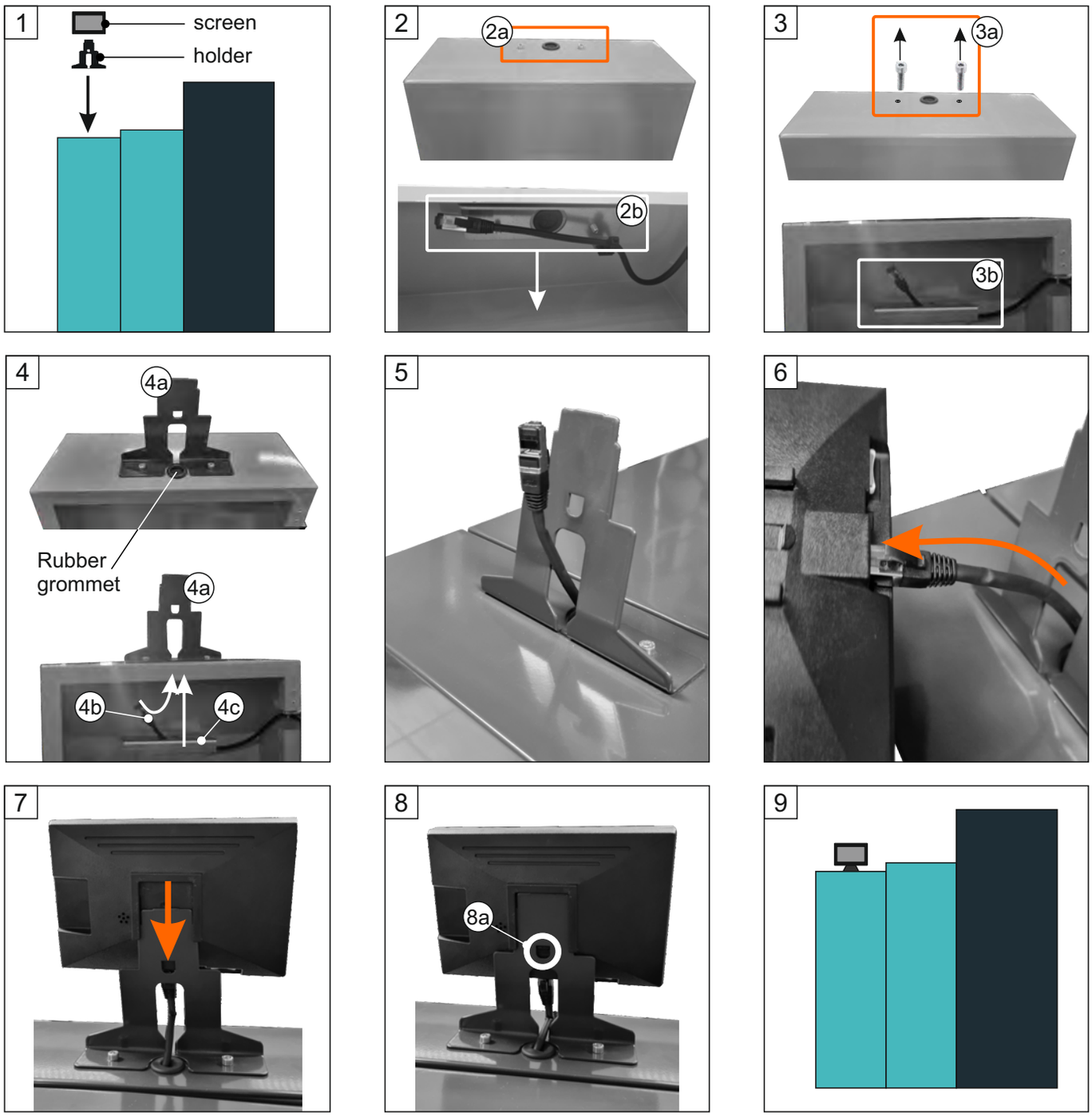


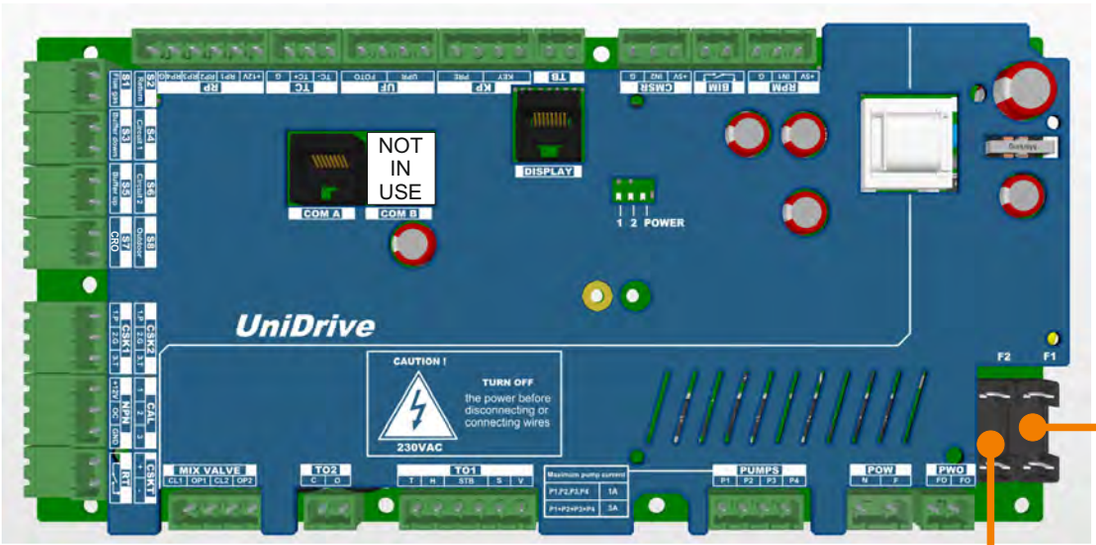
Figure 8. Holder and boiler control unit screen installation (7") (18-48kW)



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*.

5.1. FUSES

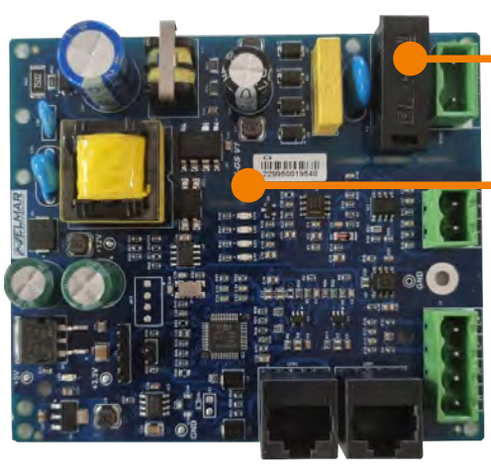
Main PCB: **UniDrive**



Mark: F1
3,15 A, F

Mark: F2
5,0 A, F

Lambda probe PCB: **LC-21-GS V1 (22995XXXXXXX "G")**



Mark: F1
3,15 A, F

label:
LC-21-GS V1
(22995XXXXXXX "G")

Control unit box: **main fuse**

Mark: F1
6,3 A, M

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	5,0 A, F	- Turbulators motor - Electric heater - Flue gas fan (with RPM sensor) - Mixing valve (boiler circuit) - Grate cleaning mechanism motor - P(PWM) - (Boiler circuit) - Pellet feeder motor - Mixing valve 1

Lambda probe PCB: **LC-21-GS V1 (22995XXXXXXX "G")**

MARK	FUSE	DEVICES
F1	3,15 A, F	- Lambda probe (power supply)

Control unit box: **main fuse**

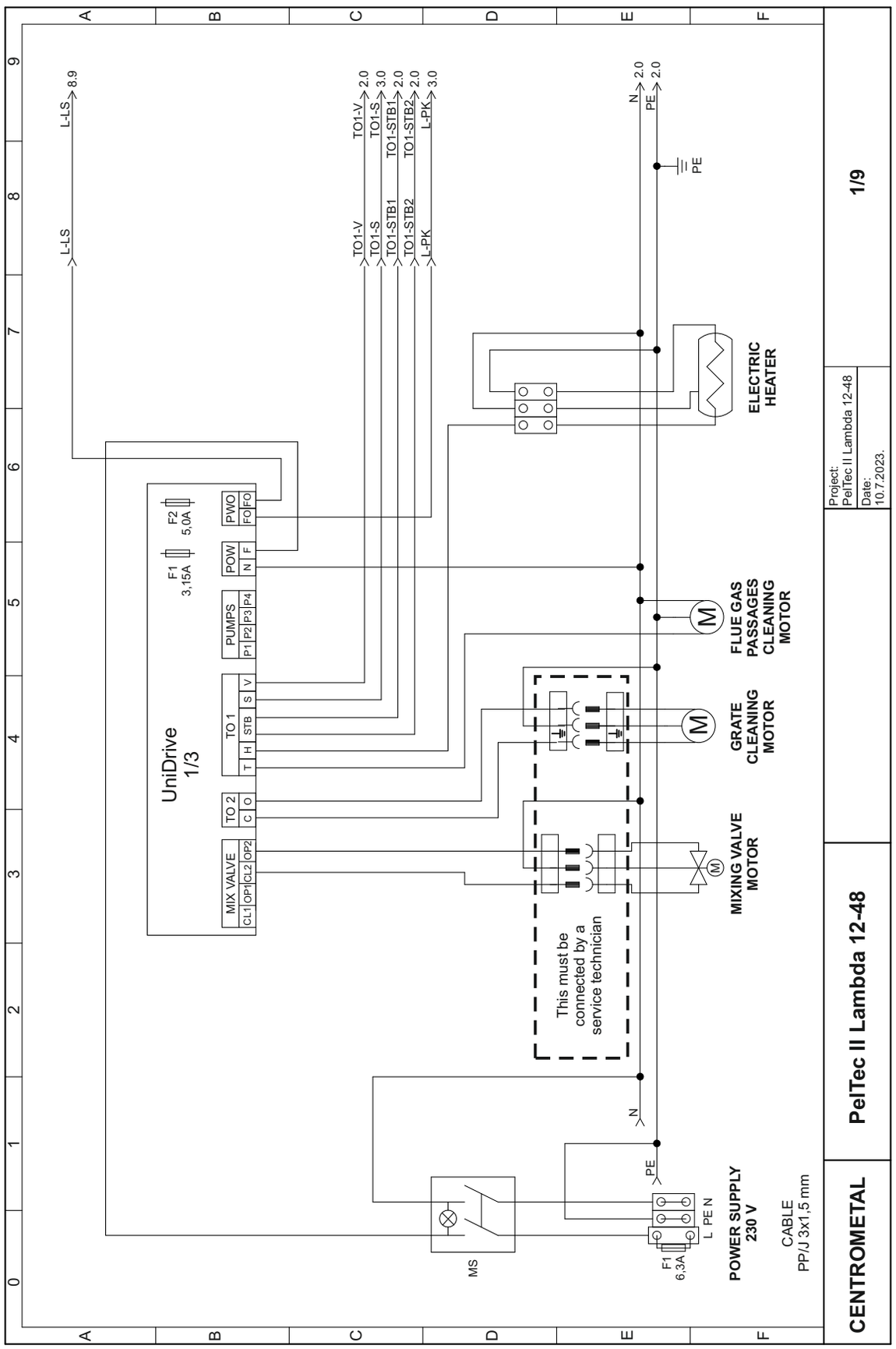
MARK	FUSE	DEVICES
F1	6,3 A, M	- Main fuse (all devices and PCB on the boiler)

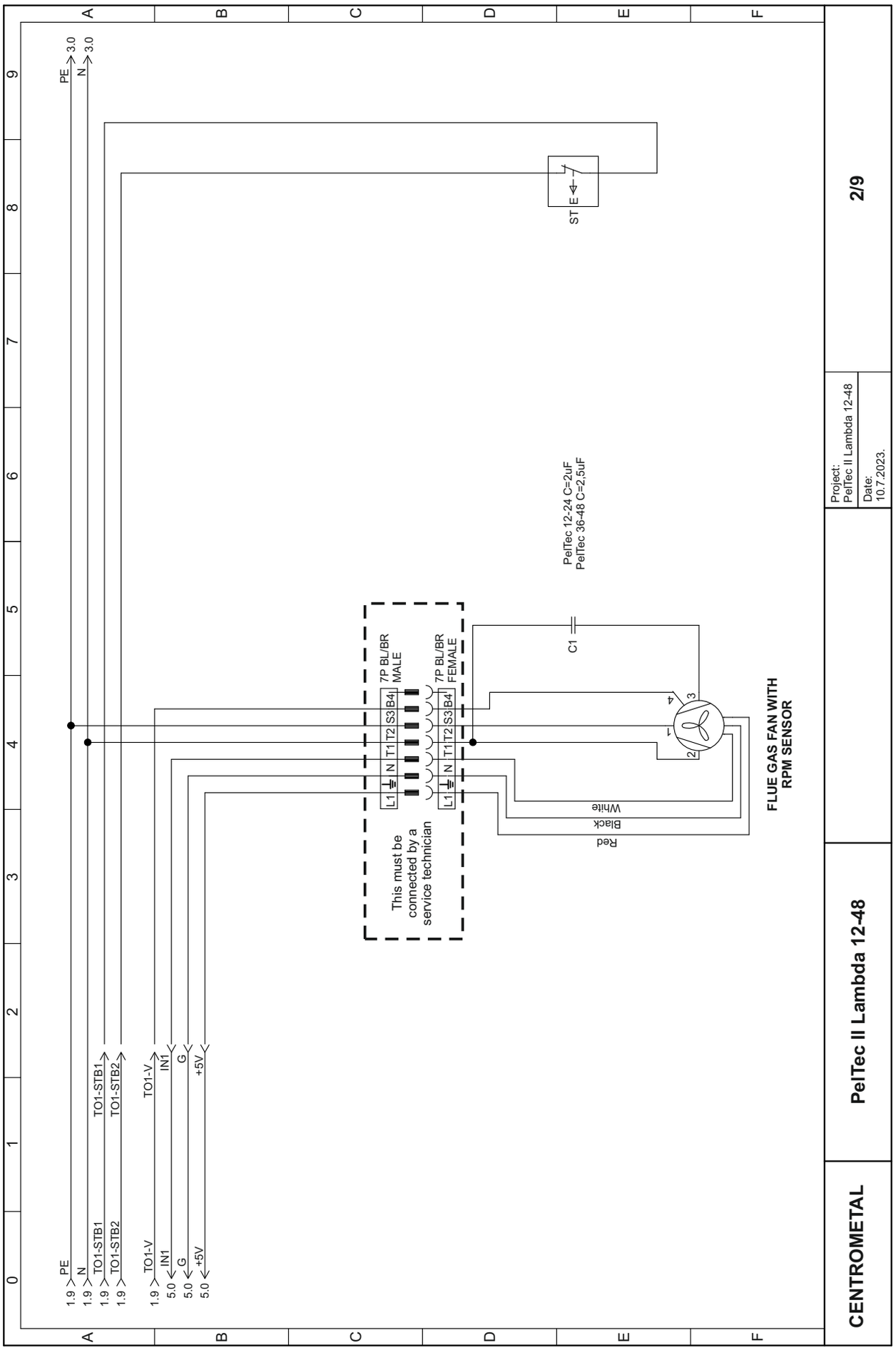
Note:
Acting fuses:
M = Medium Acting Fuse (Mitteltrage)
F = Fast Acting Fuse (Flink)

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

5.2. ELECTRICAL SCHEME

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




PE
N
TO1-STB1
TO1-STB2
TO1-V
IN1
G
+5V
1.9
5.0
3.0
ST
E
C1
PelTec 12-24 C=2uF
PelTec 36-48 C=2,5uF
7P BL/BR MALE
7P BL/BR FEMALE
L1
N
T1
T2
S3
B4
This must be connected by a service technician
Red
Black
White
FLUE GAS FAN WITH RPM SENSOR
CENTROMETAL
PelTec II Lambda 12-48
Project: PelTec II Lambda 12-48
Date: 10.7.2023.
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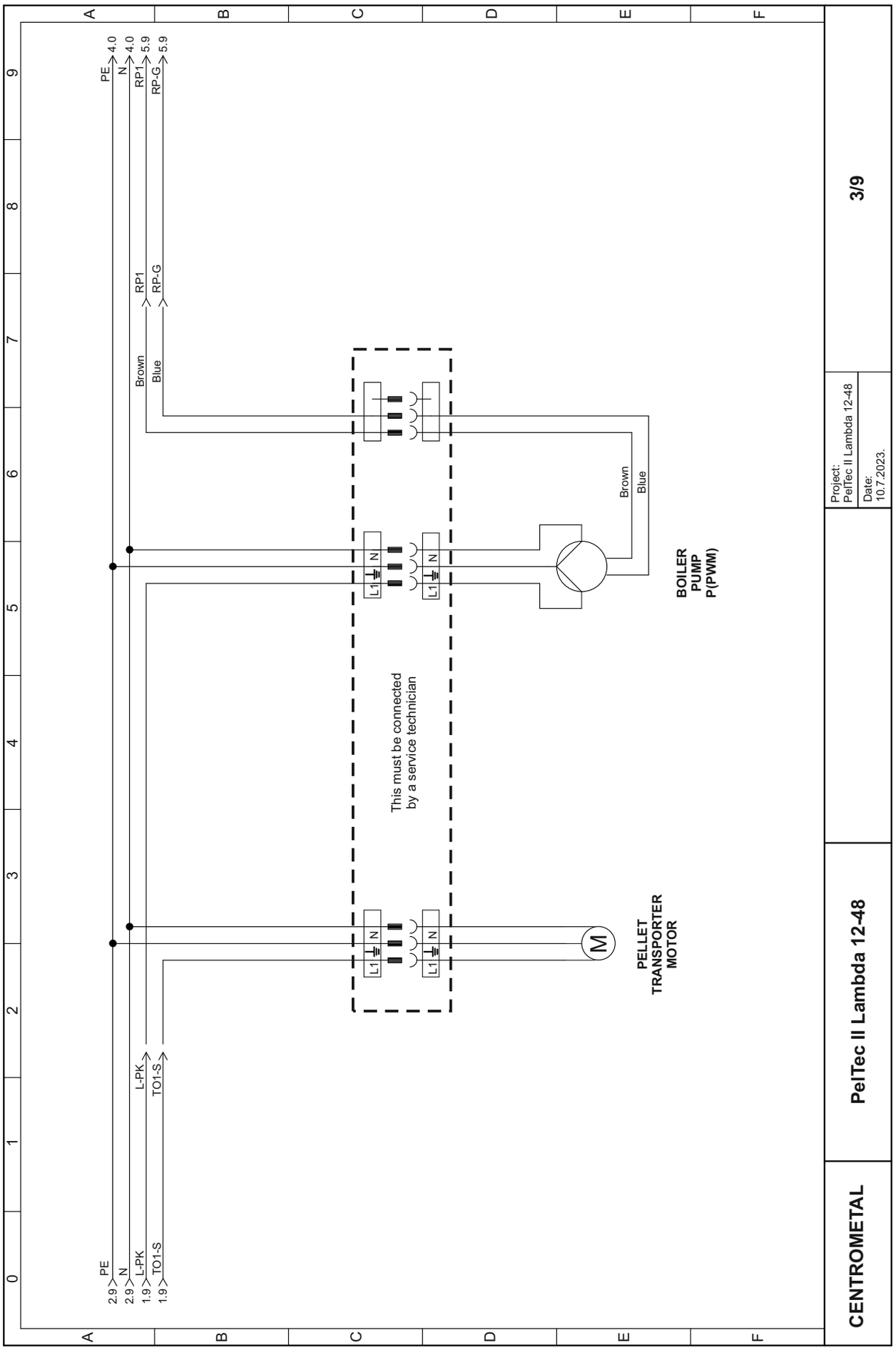
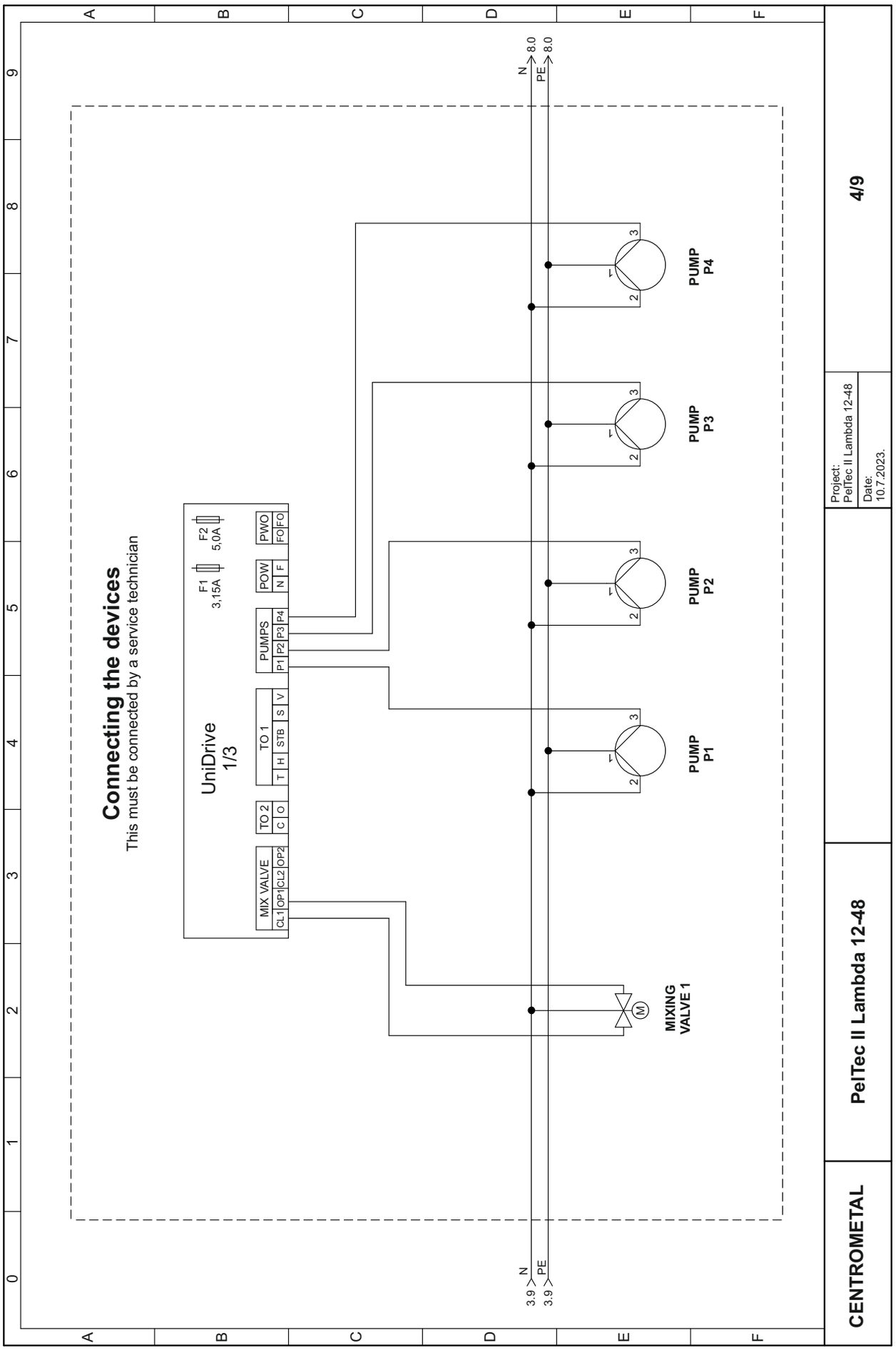
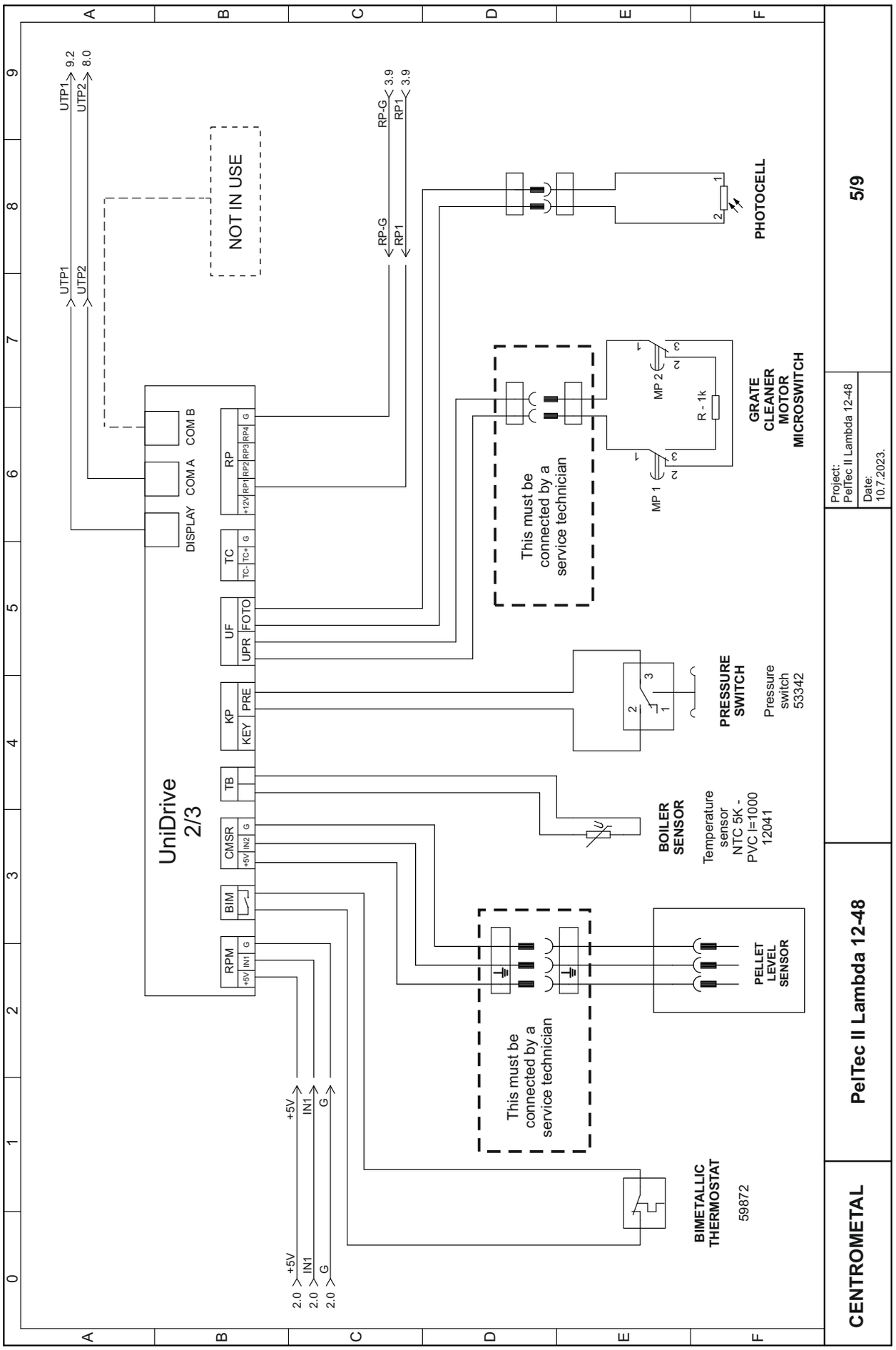

PE 4.0
N 4.0
RP1 5.9
RP-G 5.9
RP1
RP-G
Brown
Blue
Brown
Blue
BOILER
PUMP
P(PWM)
This must be connected
by a service technician
PELLET
TRANSPORTER
MOTOR
L-PK
TO1-S
PE 2.9
N 2.9
L-PK 1.9
TO1-S 1.9
CENTROMETAL
PelTec II Lambda 12-48
Project:
PelTec II Lambda 12-48
Date:
10.7.2023.
3/9


Connecting the devices
This must be connected by a service technician
UniDrive
1/3
F1
3,15A
F2
5,0A
MIX VALVE
CL1 OP1 CL2 OP2
TO 2
C O
TO 1
T H STB S V
PUMPS
P1 P2 P3 P4
POW
N F
PWO
FO FO
N
PE
3.9
8.0
PUMP
P1
PUMP
P2
PUMP
P3
PUMP
P4
MIXING
VALVE 1
CENTROMETAL
PelTec II Lambda 12-48
Project:
PelTec II Lambda 12-48
Date:
10.7.2023.
4/9


UniDrive 2/3
DISPLAY
COM A
COM B
UTP1
UTP2
9.2
8.0
NOT IN USE
RP-G
RP1
3.9
PHOTOCELL
GRATE CLEANER MOTOR MICROSWITCH
MP 1
MP 2
R - 1k
This must be connected by a service technician
PRESSURE SWITCH
Pressure switch 53342
BOILER SENSOR
Temperature sensor NTC 5K - PVC l=1000 12041
PELLET LEVEL SENSOR
BIMETALLIC THERMOSTAT
59872
+5V
IN1
G
2.0
CENTROMETAL
PelTec II Lambda 12-48
Project: PelTec II Lambda 12-48
Date: 10.7.2023.
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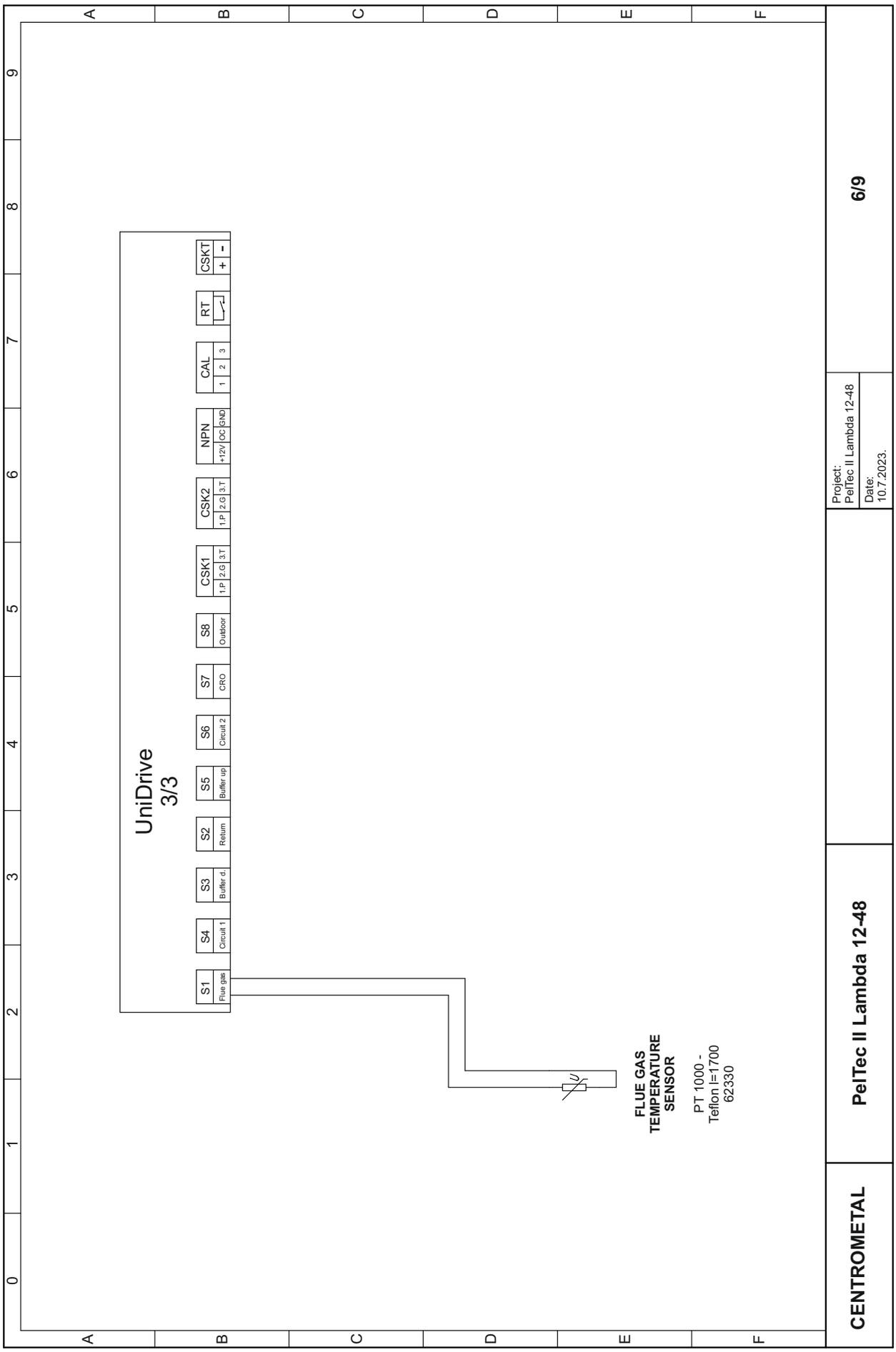
UniDrive
3/3
S1
Flue gas
S4
Circuit 1
S3
Buffer d.
S2
Return
S5
Buffer up
S6
Circuit 2
S7
CRO
S8
Outdoor
CSK1
1.P
2.G
3.T
CSK2
1.P
2.G
3.T
NPN
+12V
OC
GND
CAL
1
2
3
RT
CSKT
+
-
FLUE GAS
TEMPERATURE
SENSOR
PT 1000 -
Teflon l=1700
62330
CENTROMETAL
PelTec II Lambda 12-48
Project:
PelTec II Lambda 12-48
Date:
10.7.2023.
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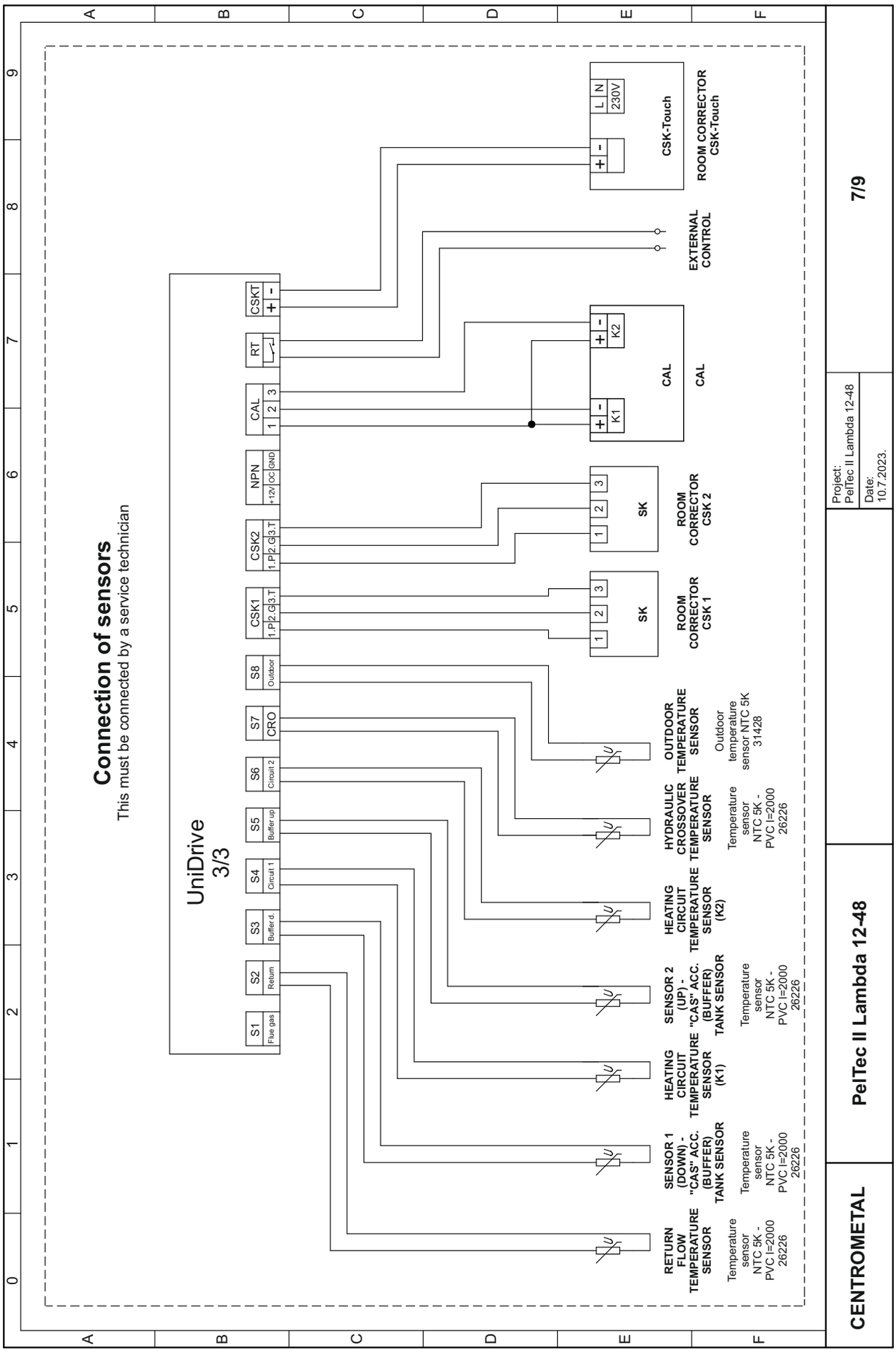
Connection of sensors
This must be connected by a service technician
UniDrive
3/3
S1 Flue gas
S2 Return
S3 Buffer d.
S4 Circuit 1
S5 Buffer up
S6 Circuit 2
S7 CRO
S8 Outdoor
CSK1 1.P.2.G.3.T
CSK2 1.P.2.G.3.T
NPN +12V OC GND
CAL 1 2 3
RT
CSKT + -
RETURN FLOW TEMPERATURE SENSOR
Temperature sensor NTC 5K - PVC l=2000 26226
SENSOR 1 (DOWN) - "CAS" ACC. (BUFFER) TANK SENSOR
Temperature sensor NTC 5K - PVC l=2000 26226
HEATING CIRCUIT TEMPERATURE SENSOR (K1)
SENSOR 2 (UP) - "CAS" ACC. (BUFFER) TANK SENSOR
Temperature sensor NTC 5K - PVC l=2000 26226
HEATING CIRCUIT TEMPERATURE SENSOR (K2)
HYDRAULIC CROSSOVER TEMPERATURE SENSOR
Temperature sensor NTC 5K - PVC l=2000 26226
OUTDOOR TEMPERATURE SENSOR
Outdoor temperature sensor NTC 5K 31428
ROOM CORRECTOR CSK 1
SK
ROOM CORRECTOR CSK 2
SK
CAL
K1
K2
EXTERNAL CONTROL
ROOM CORRECTOR CSK-Touch
CSK-Touch
L N 230V
CENTROMETAL
PelTec II Lambda 12-48
Project: PelTec II Lambda 12-48
Date: 10.7.2023.
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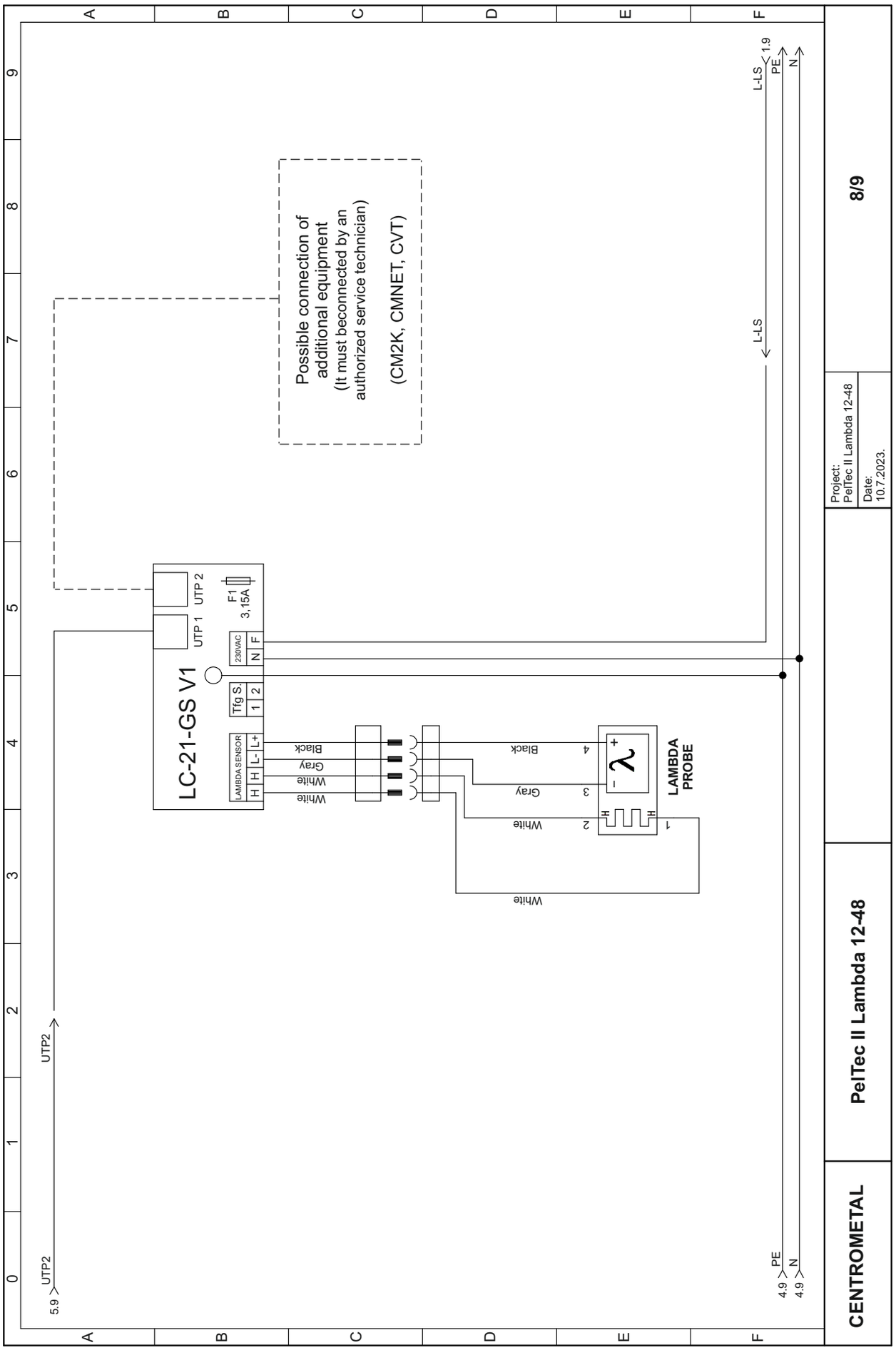
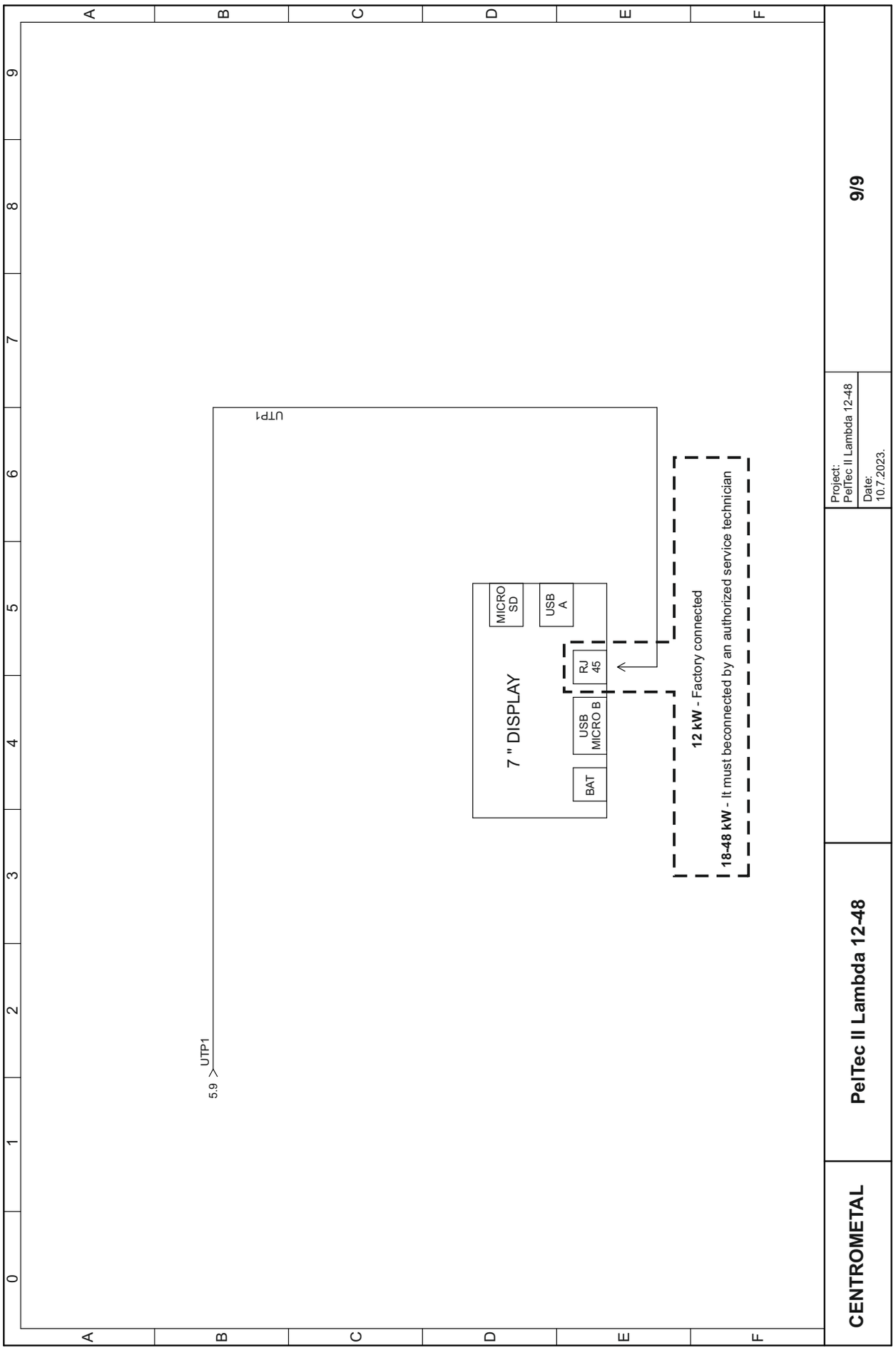

Possible connection of additional equipment (It must beconnected by an authorized service technician)
(CM2K, CMNET, CVT)
LC-21-GS V1
UTP 1
UTP 2
F1 3,15A
230VAC
N
F
Tfg S.
1
2
LAMBDA SENSOR
H
H
L-
L+
White
Gray
White
Black
LAMBDA PROBE
1
2
3
4
White
Gray
Black
L-LS
1.9
PE
N
L-LS
UTP2
5.9
UTP2
4.9
PE
4.9
N
CENTROMETAL
PelTec II Lambda 12-48
Project:
PelTec II Lambda 12-48
Date:
10.7.2023.
8/9


A
B
C
D
E
F
0
1
2
3
4
5
6
7
8
9
UTP1
5.9
UTP1
7 " DISPLAY
MICRO SD
USB A
RJ 45
USB MICRO B
BAT
12 kW - Factory connected
18-48 kW - It must beconnected by an authorized service technician
CENTROMETAL
PelTec II Lambda 12-48
Project:
PelTec II Lambda 12-48
Date:
10.7.2023.
9/9

6.0. OPERATING THE SYSTEM

Boiler must not be used in flammable and explosive environment.
It must not be used by children or disabled persons (either physically or mentally), as well as by person without knowledge or experience, unless they are under control or trained by s person responsible for their safety.
Children must be supervised in the vicinity of the product. If the supply cord is damaged, it must be replaced by the manufacturer, service technician or similarly qualified person.

6.1. SAFETY INSTRUCTIONS FOR THE INSTALLATION ROOM

Boiler room must be frost-proof and well ventilated. Boiler has to be positioned so that it can be properly connected to the chimney and simultaneously, enabling tending of boiler and additional equipment, control during operation, and cleaning and maintenance.

6.2. INITIAL STARTUP

See technical instructions for PelTec II Lambda digital controller where is explained initial startup.

Note:
The start up has to be done by the authorized person, otherwise the warranty for this product is not valid and the product must not be used.

Note:
If condensation escapes during the initial heatup phase, this does not indicate a fault.
If this occurs, clean up using a cleaning rag.

6.3. FILLING / REFILLING PELLET STORAGE WITH FUEL

Use only permitted pellets (see point 1.7 of this technical manual)!

6.3.1. BOILER USE

The heating system should be vented if necessary so that water can circulate normally through the system. To airvent the heating installation, use the "AIRVENT" option (see technical instructions PelTec II Lambda_CONTROLLER).

Boiler must not be used in flammable and explosive environment.
It must not be used by children or disabled persons (either physically or mentally), as well as by person without knowledge or experience, unless they are under control or trained by s person responsible for their safety. Children must be supervised in the vicinity of the product. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard. Protective gloves are obligatory.
Check whether boiler and equipment are installed and connected in accordance with these Technical instructions. Check whether chimney meets requirements of point 3.0 therein. Check whether boiler room meets all requirements therein. Check if fuel fulfils all requirements therein. Check whether the boiler and the entire heating system are filled with water and vented.

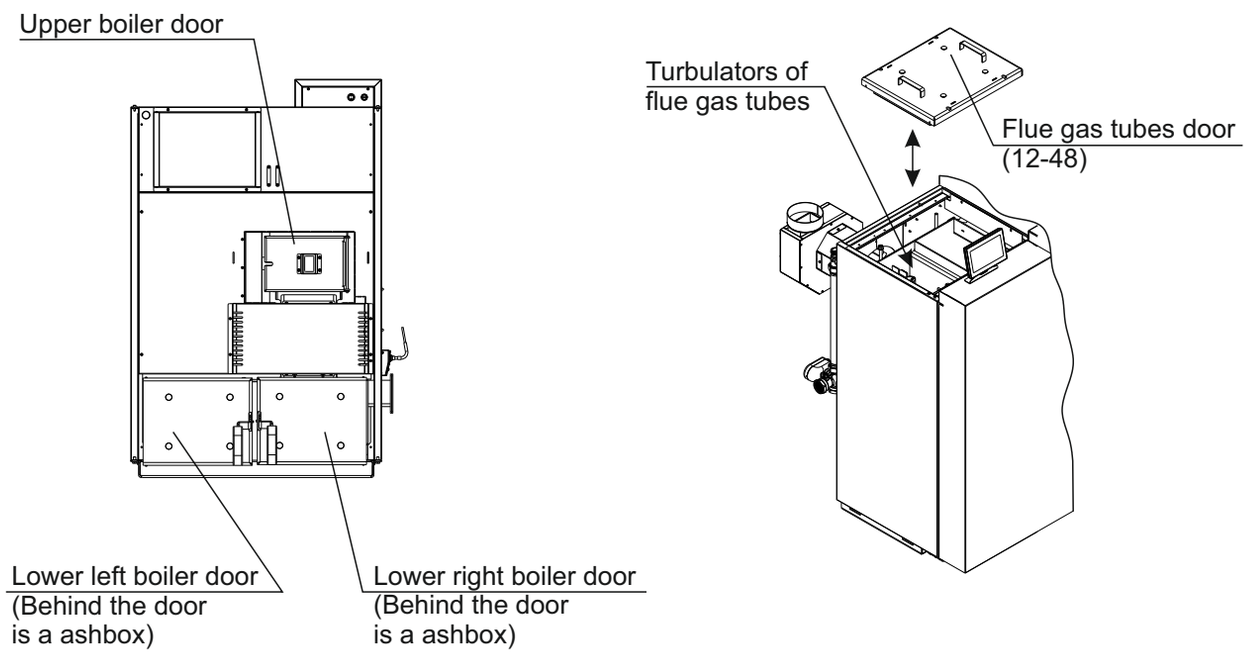
Note:
Before every use chech if the boiler doors and cover door are closed (Figure 9).

If you smell flue gas:

- Shut down the heating system
- Ventilate the boiler room
- Close all doors leading to the living space

⚠	**Flue gas can lead to life-threatening poisoning!**

Figure 9. PelTec II Lambda boiler doors



⚠	**If for any reason the screw feeder is empty, it must be filled with pellets before starting the boiler with the option "FILLING FEEDER SCREW" (see technical instructions PelTec II Lambda_CONTROLLER).**

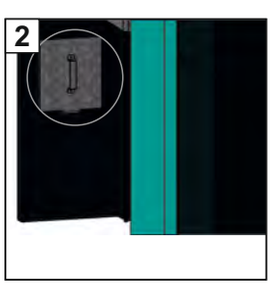
7.0. CLEANING AND MAINTENANCE

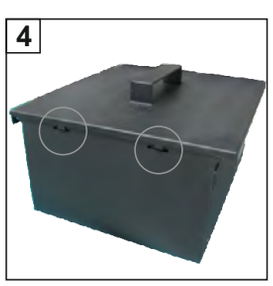
Every millimeter of soot on the exchange surfaces and in the flues means about 5 % more fuel consumption. A clean boiler saves fuel and protects the environment.
Save fuel – always clean the boiler in good time!

PROTECTIVE GLOVES ARE OBLIGATORY!

Cleaning interval	Boiler type	Description
After spent 150-250 kg of pellets	12kW	Discharge ash boxes
After spent 250-350 kg of pellets	18kW	Discharge ash boxes
After spent 300-450 kg of pellets	24kW	Discharge ash boxes
After spent 400-600 kg of pellets	36/48kW	Discharge ash boxes

Emptying the ash box:



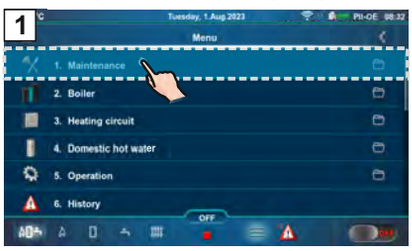


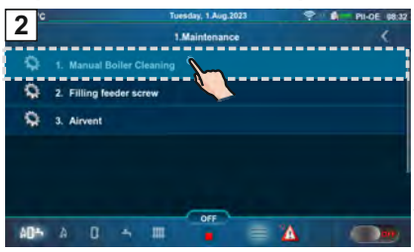
1. Take out ash boxes (12 kW = 1x, 18-48 = 2x).
2. For carrying ash boxes, use a protective cover which is located on the inside of front door. For boilers 18-48 kW take out one by one box in order to use the same cover (Figure 2).
3. Attach the cover to the 3 holes (Figure 3.4) .
4. Put the cover and ash box back to original position.

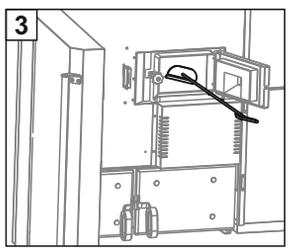
IMPORTANT! The ash can be disposed only in a metal container!

Cleaning interval	Boiler type	Description
At least once per year (This procedure is very simple and is recommends even more often)	12-48 kW	Cleaning of exchanging surfaces (above the burner)

Claning of exchanging surfaces (above the burner)



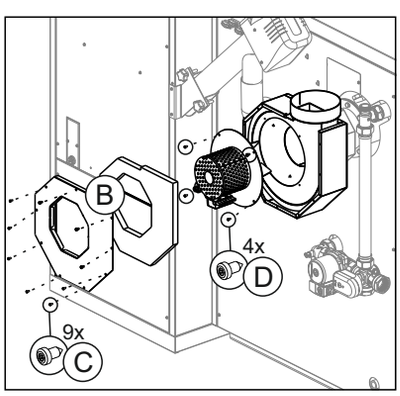


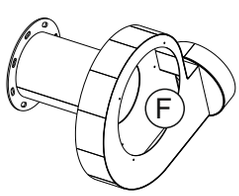


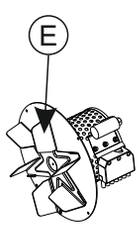
1 - Press the "Maintenance" on the regulation and then "Manual Boiler Cleaning".
2 - Press the "ON" button with the desired fan speed (it will start the fan and it will open a grate.)
3 - By using scraper, brush or vacuum cleaner, through the door clean exchanging surfaces
4 - After you finish cleaning,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

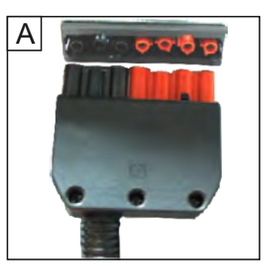
Cleaning interval	Boiler type	Description
When needed	12-48 kW	Cleaning the blades and box of the fan

Cleaning the blades and box of the fan



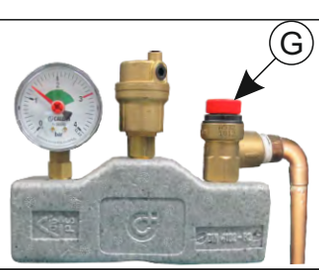






1. Switch off the boiler and disconnect from electric power.
2. Pull out the 7-pole connector (A) from the fan connection.
3. Remove the cover lid and the insulation (B) which are secured with 9 screws (C).
4. Unscrew the 4 screws (D) and remove the fan, clean the fan blades (E), check the condition of the fan box (F) and clean if necessary with a vacuum cleaner or remove from the boiler and clean completely.
5. Set back the fan into original position and secure it with screws, then connect 7-pole connector (A) to the connection on the fan and connect the power supply to the boiler.

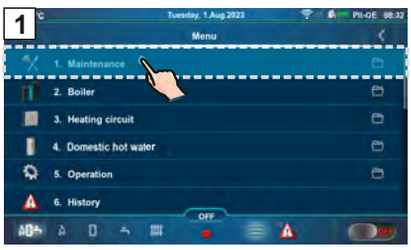
Cleaning interval	Boiler type	Description
Every 6 months	12-48 kW	Check the correctness of safety valve

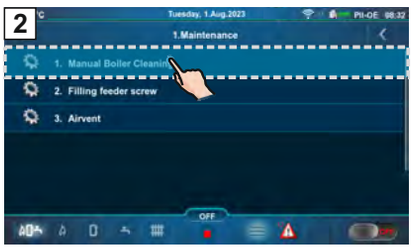


Checking the correctness of safety valve

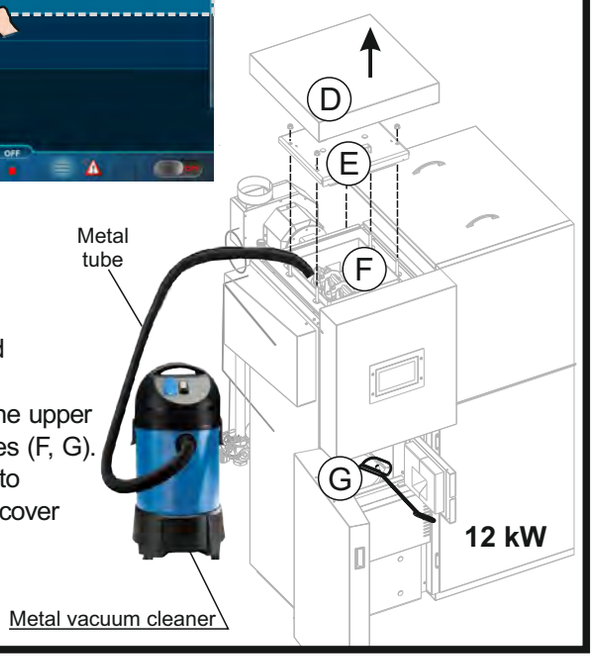
By briefly turning the cap of safety valve (G) check whether water coming out from the safety valve. If no water comes out after several repeated checks, then is necessary to replace the safety valve.

Cleaning interval	Boiler type	Description
At least once per year	12 kW	Cleaning of exchanging surfaces (around the entire boiler)

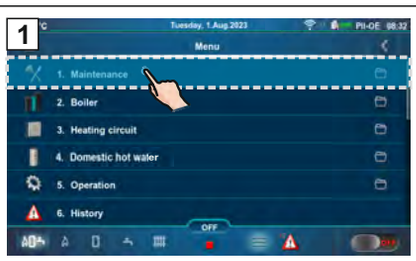


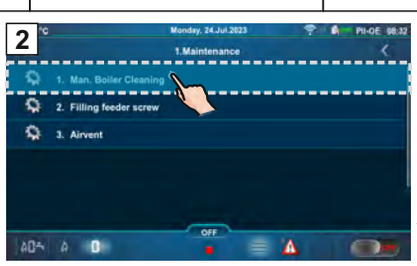


1. Press the "Maintenance" on the regulation and then "Manual Boiler Cleaning".
2. Press the "ON" button with the desired fan speed (it will start the fan and it will open a grate.)
3. Lift the top cover (D), then unscrew the four screws and remove the upper door (E).
4. By using scraper, brush and vacuum cleaner, through the upper side and trough the front door clean exchanging surfaces (F, G).
5. When you have finished cleaning, set upper door back to original position and tighten them well, then set the top cover back to position and close the front door of the boiler. Then press "back" on the controller ( ) to return boiler to normal mode.

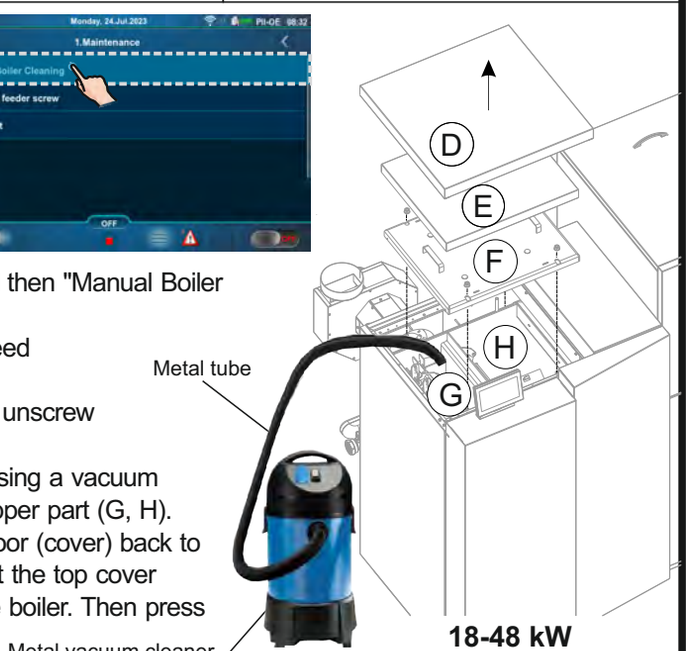


Cleaning interval	Boiler type	Description
At least once per year	18-48 kW	Cleaning of exchanging surfaces (around the entire boiler)





1. Press the "Maintenance" on the regulation and then "Manual Boiler Cleaning".
2. Press the "ON" button with the desired fan speed (it will start the fan and it will open a grate.)
3. Remove the top cover (D) and cover (E), then unscrew the 4 screws and remove the cover (F).
4. Clean the flue gas passages and exchanger using a vacuum cleaner, brush and scraper starting from the upper part (G, H).
5. When you have finished cleaning, set upper door (cover) back to original position and tighten them well, then set the top cover back to position and close the front door of the boiler. Then press "back" on the controller ( ) to return boiler to normal mode.

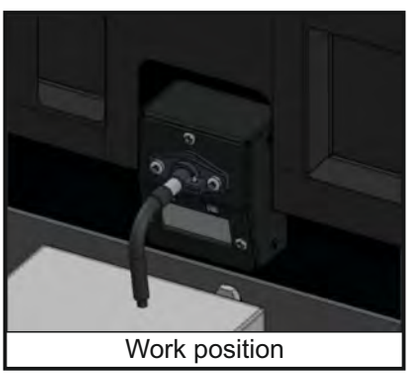


Photocell cleaning interval	Boiler type	Description
At least once a year (or if you have problems with the ignition)	12-48 kW	Photocell cleaning

Dirty photocell which can result error in ignition or flame dissapear error

Valid photocell

Carefully remove the photocell from the box and then gently with a cotton swab clean the body and lens of photocell. After cleaning, carefully return photocell to work position.



Work position

Cleaning interval	Boiler type	Description
At least once per year	12-48 kW	Cleaning and checking the flue installation sealing

Cleaning and checking the flue installation sealing

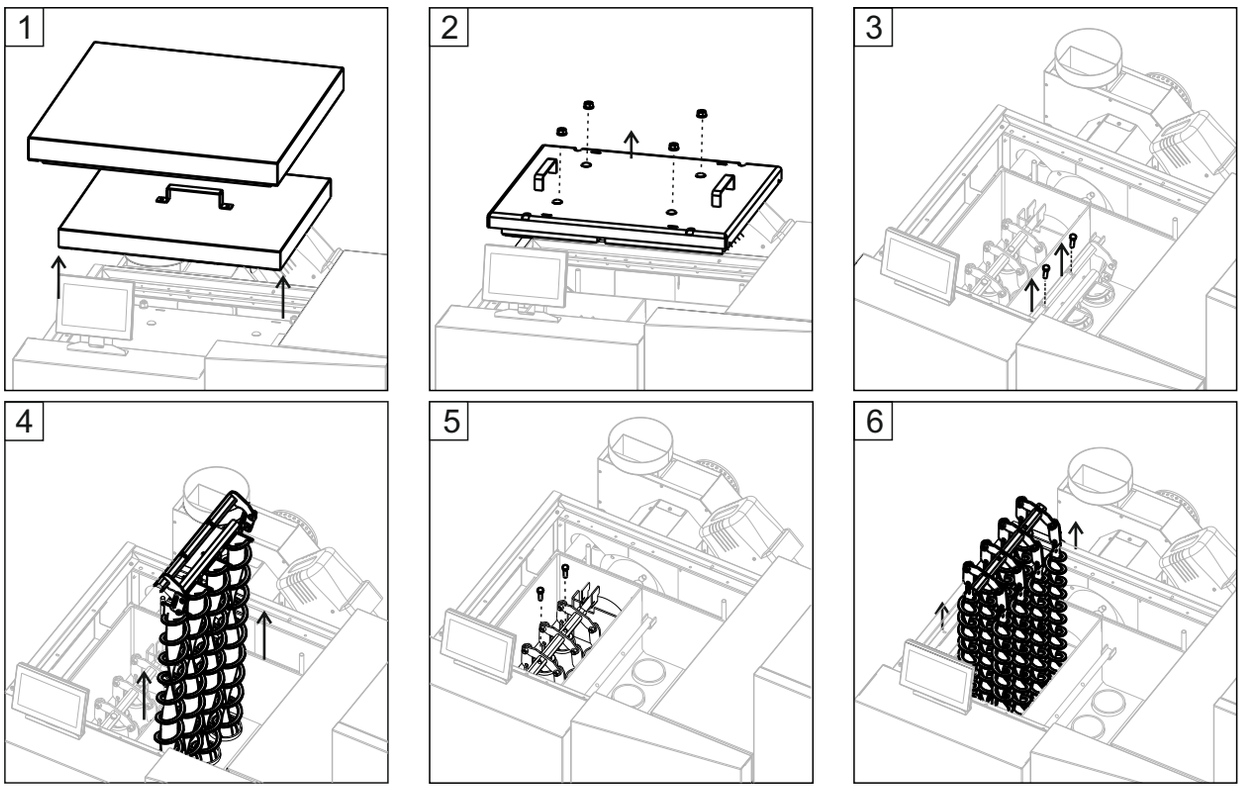
Clean flue installation between the boiler and the chimney through the revision openings for cleaning or if not incorporated revision opened by removing the flue installation. After cleaning, inspect flue installation good sealing and seal it if the seal is not satisfactory.

The ecological rules and standards must be applied for disposal of changed spare parts, wrapping material, all parts of the boiler after it's expire.

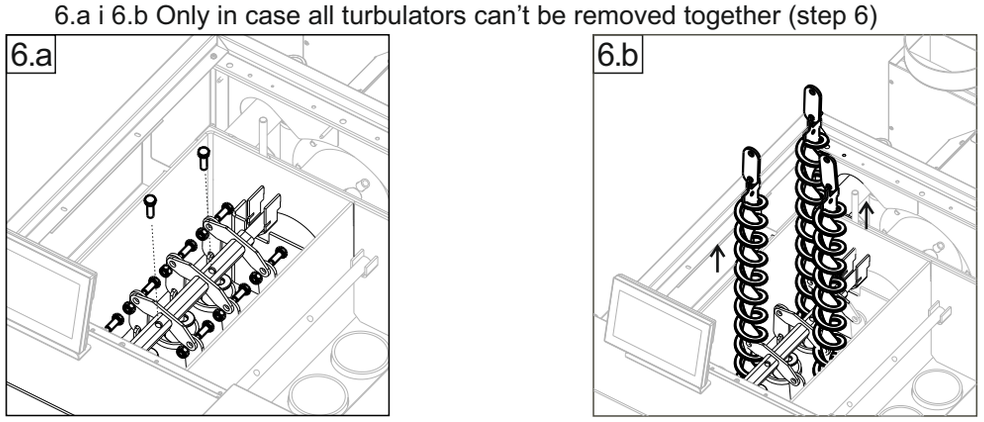
1. **Electric heater**
2. **Failure on distribution power box with digital boiler control unit**
3. **Fan failure**
4. **Pellet feeder Motor failure**
5. **Temperature sensors failure**
6. **Photocell failure**

Every seven years to call an authorized service provider for routine maintenance and control.

7.1. EXTRACTION OF TURBULATORS - PelTec II Lambda 12-48



6.a i 6.b Only in case all turbulators can't be removed together (step 6)



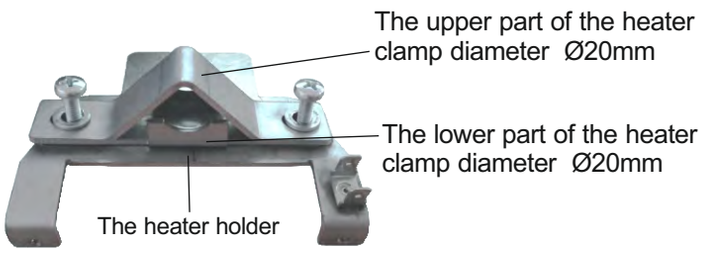
Switch the boiler off and disconnect it from electric power.
1 - Remove the casing cover.
2 - Unscrew the 4 screws and remove the flue ducts door.
3,4 - Unscrew the 2 screws and lift turbulators (first pass) with bracket as shown in picture.
5 - Unscrew the 2 screws from carrier on second pass.
6 - Remove all turbulators with carrier. (If you can't remove all turbulators together, then unscrew all screws on all turbulators (6.a) and remove turbulators one by one (6b).

NOTE:
Place turbulators back in the same way but in the reverse order!
There are 1 or 2 sets of turbulators (depending on the model of boiler)

PROTECTIVE GLOVES ARE OBLIGATORY!

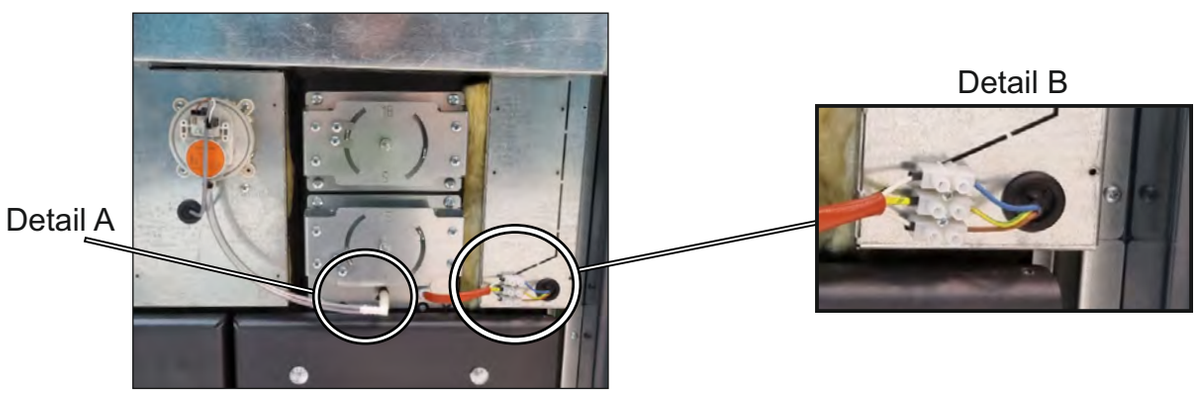
7.2. REPLACEMENT OF THE EL. HEATER WITH NEW EL. HEATER DIAMETER Ø20 mm

Electric heater with a diameter of Ø 20 mm

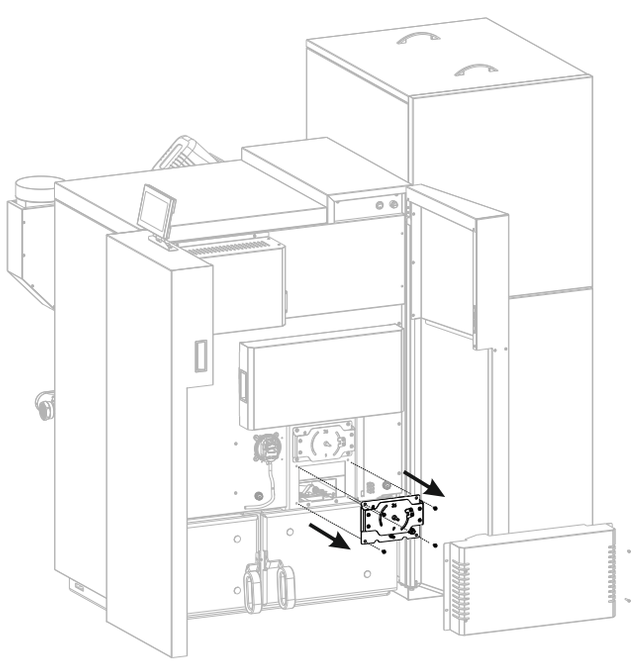


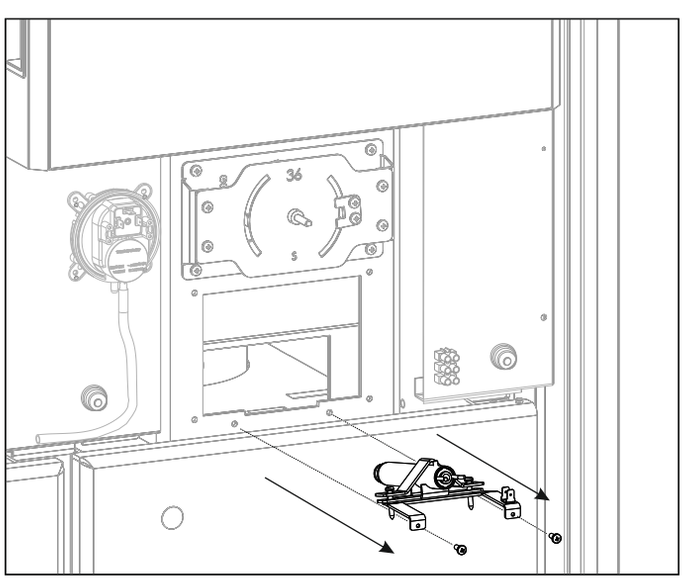
The heater holder with clamp for electric heater with a diameter of Ø 20 mm

1.Unplug the safety pressure switch tube (detail A), and disconnect the wires of the electric heater from the terminal block (Detail B).

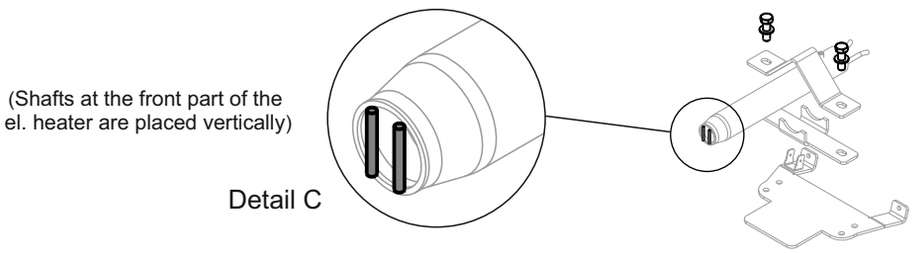


2. Unscrew the 4 screws and remove the primary air regulation. Then unscrew the 2 heater holder screw and pull out heaters holder together with the el. heater.

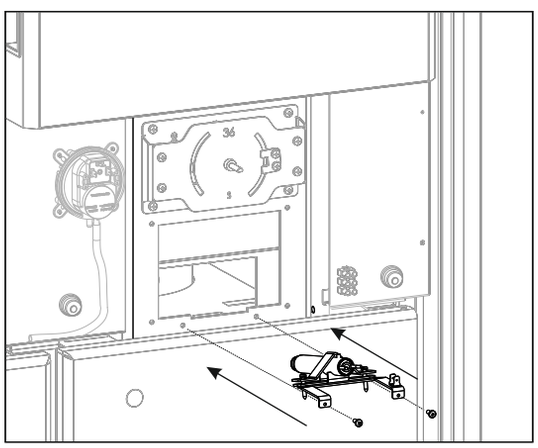


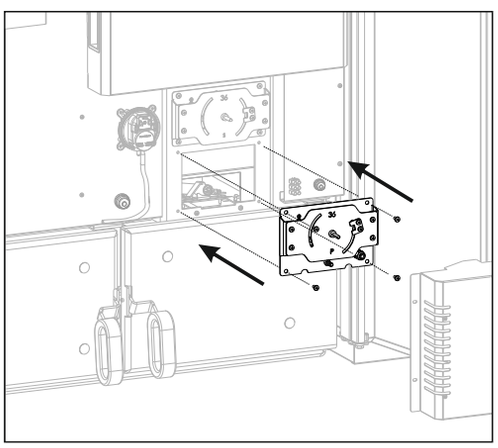


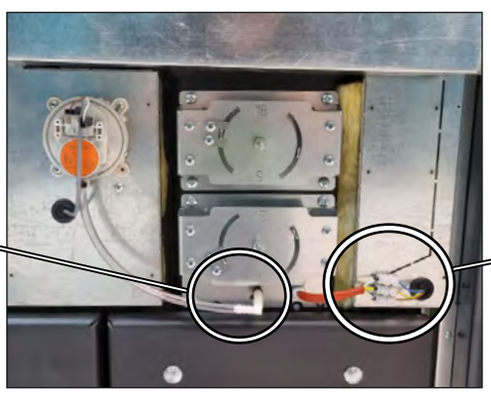
3. Unscrew the two screws and remove the heater clamp. Insert the new el. heater, turn it so that the shafts at the front part of the el heater are turned vertically (see detail C) and gently attach it to the heater holder (Still not fully tightened).



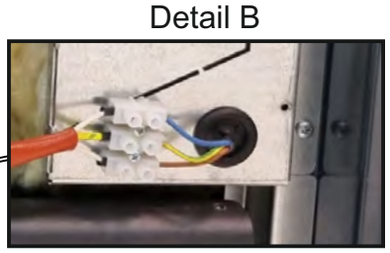
4. Place the el. heater with the holder in place and fasten it with two screws. Set the heater to the inner edge of the burner hole (see detail D). If necessary, loosen the clamp of the heater holder and push the holder until the edge of the burner hole and then tighten the clamp. Place the primary air regulation and connect with 4 screws. Connect the el. heater wires to the terminal block (detail B) and connect pressure switch tube (detail A).



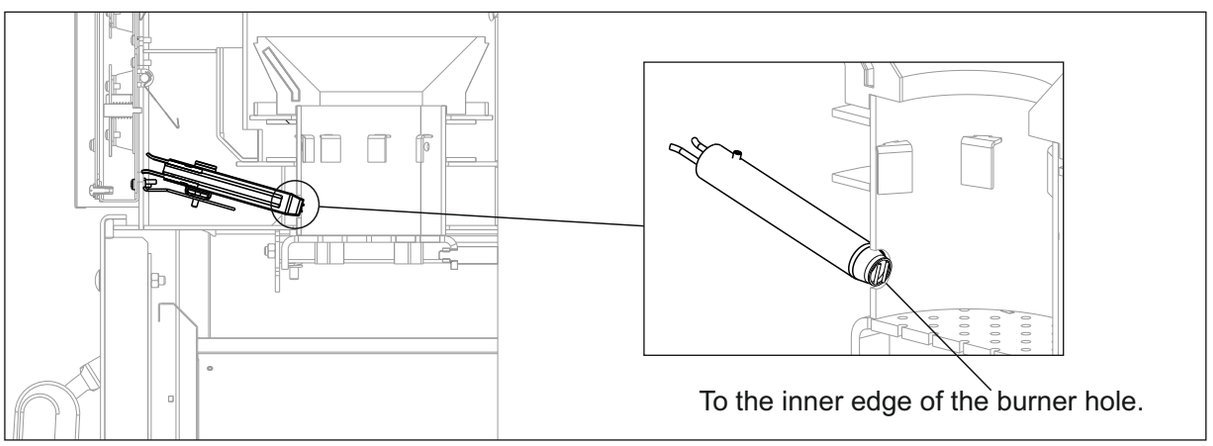




Detail B



Detail D



7.3. CLEANING OF PELLET TANK AND SCREW FEEDER (TRANSPORTER)

Cleaning the pellet tank from dust is must be done as needed or at least once a year. Protective gloves are obligatory!

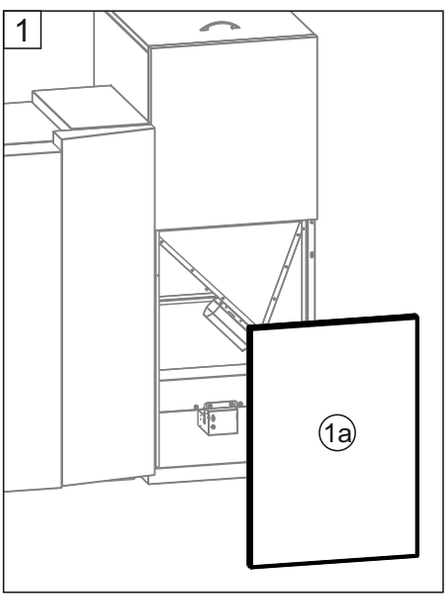
The procedure for cleaning the tank and screw feeder for PelTec II Lambda 24-48 (for PelTec II Lambda 12-18 the same cleaning principle is used, only the controller box is in a different place):
- Switch off the boiler and remove the plug from the socket.

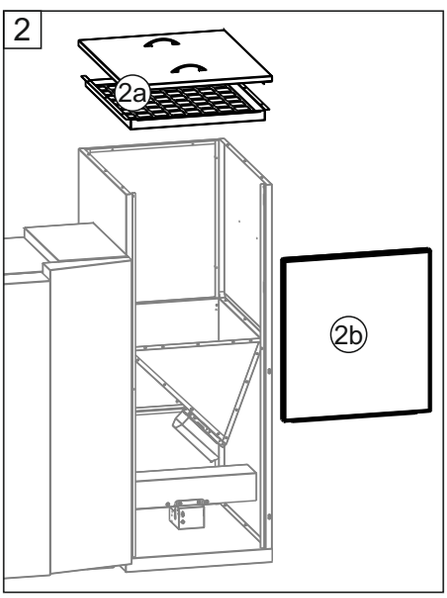
1. Remove the front lower cover of the tank (1a).
2. Remove the cover and protective grate (2a) and the front upper cover of the tank (2b).
3. If you use a vacuum cleaner, clean the inside of the tank to make it easier to remove the screw feeder.
4. Disconnect the screw feeder connector (4a) from the controller box and remove the screw feeder cable from the plastic clip on the back side of the boiler cover (4b).
5. Remove flexibile PVC tube (5a).
6. Release and remove the bracket (6a) witch holding the screw feeder.

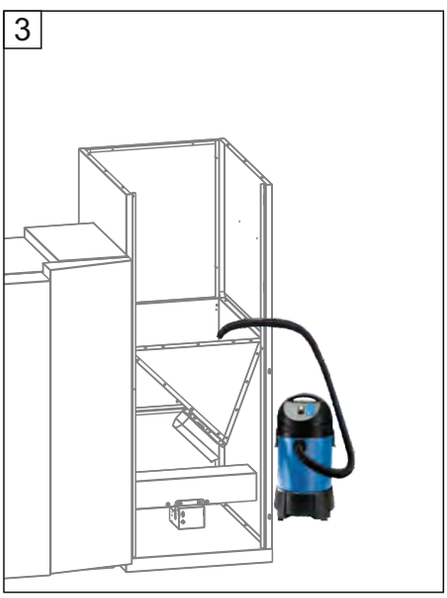
7_1. Remove the pellet screw feeder (7a) and clean it of pellets and dust (shake it out).

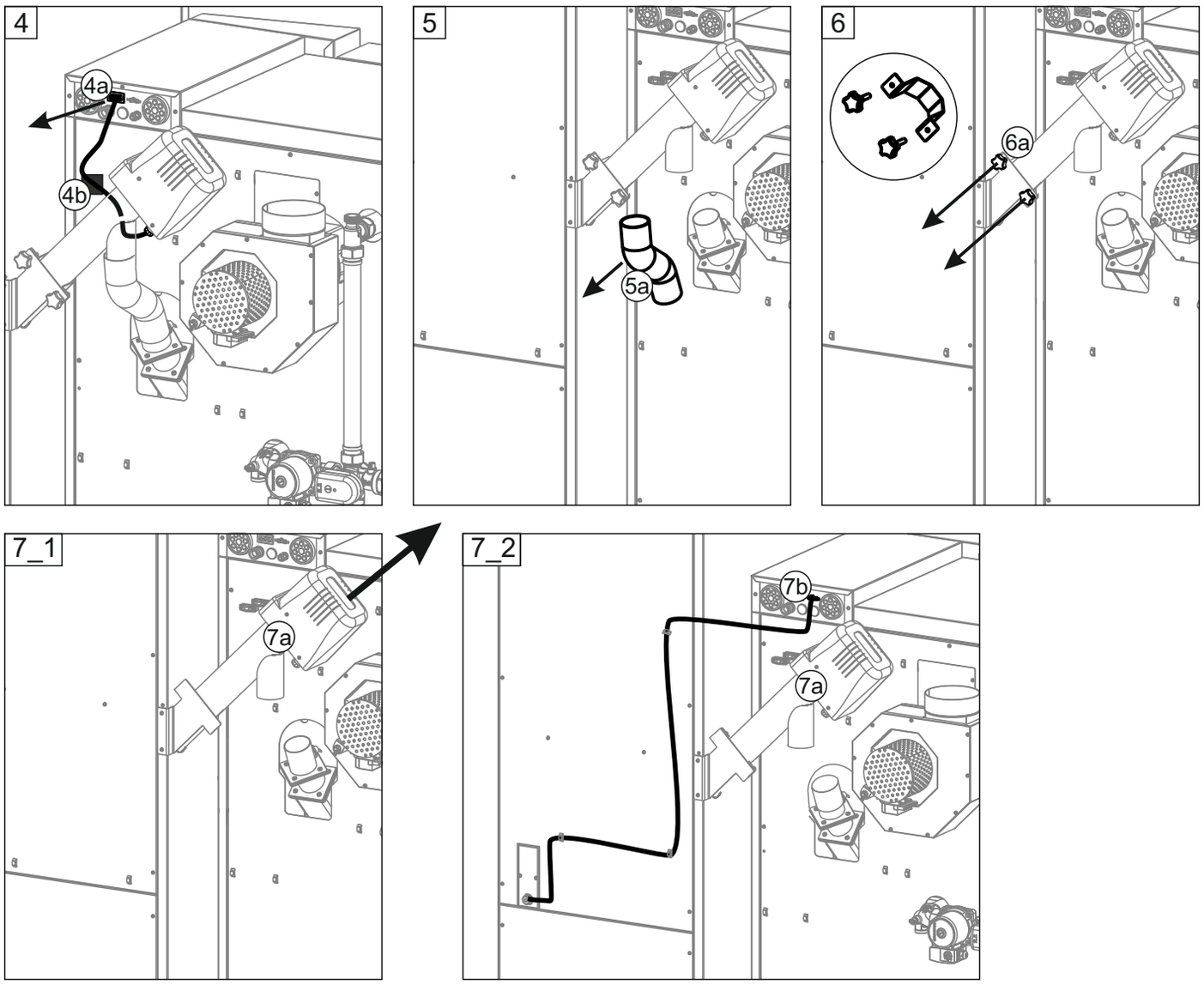
7_2. If the space does not allow removing the screw feeder (7a):
   - disconnect the connector of the pellet level sensor (7b) from the controller box (on the PelTec II Lambda 12/18 boiler, pay attention to this cable of the pellet level sensor so that it is not damaged after disconnection, as it remains free for a large length and can fall to the floor).
   - Unscrew the two screws (7c) that hold (keep) the tank and the boiler together.
   - Move the tank (7d) away from the boiler enough to allow the screw feeder (7b) to be removed.

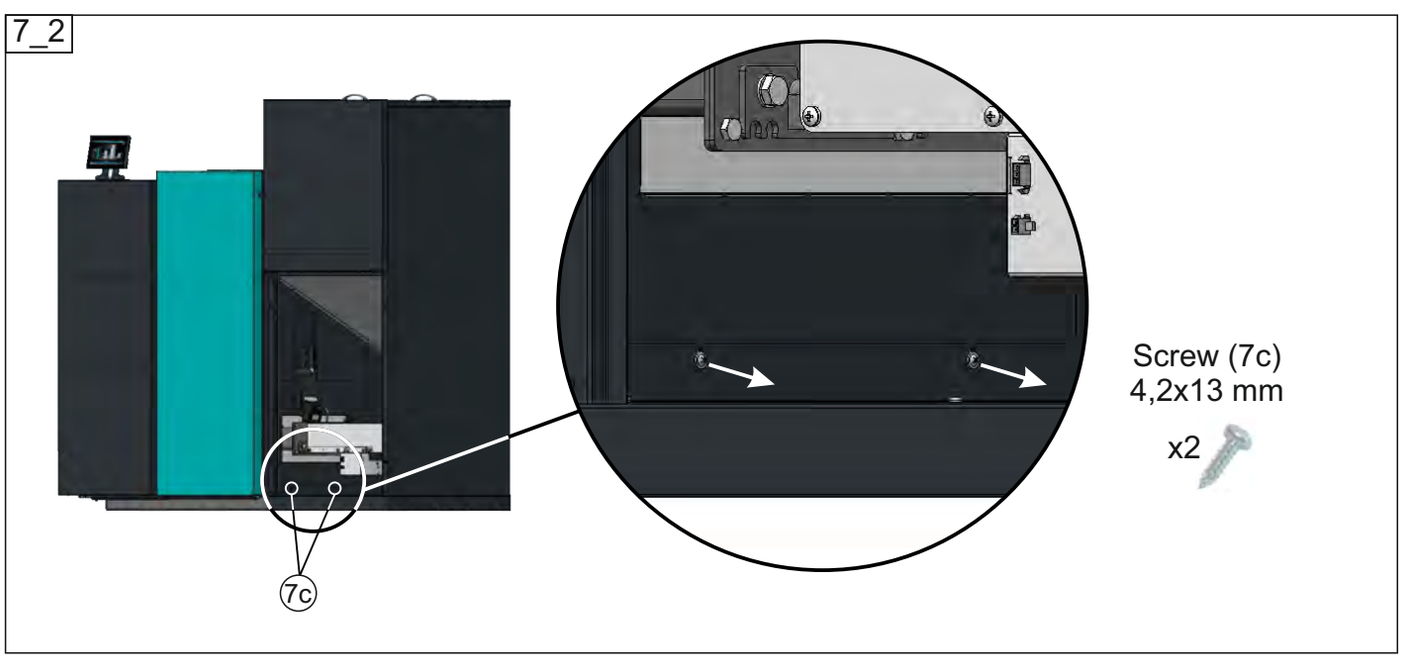
8. If you use a vacuum cleaner, clean the screw feeder support (8a) of pellets and dust.
9. If you did not use a vacuum cleaner, remove the screw feeder support (9a) and clean the tank of pellets and dust through the hole (9b).
10. Return all parts to their place (in the state before the start of the cleaning process), but in the reverse order.



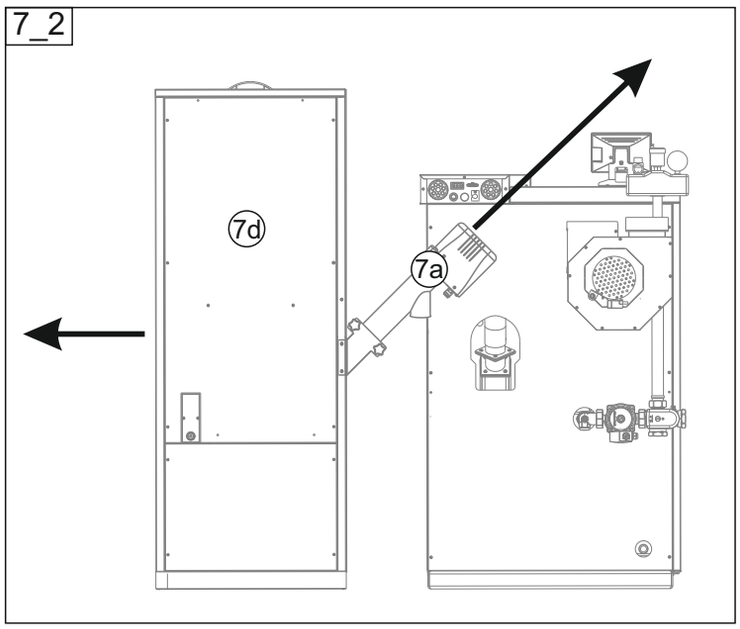





4
4a
4b
5
5a
6
6a
7_1
7a
7_2
7b
7a


7_2
7c
Screw (7c)
4,2x13 mm
x2

7_2



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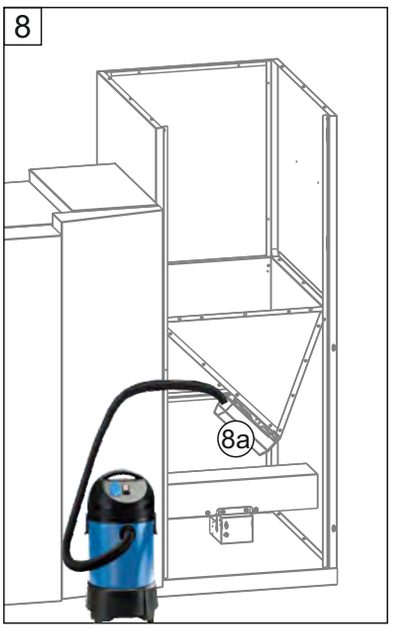

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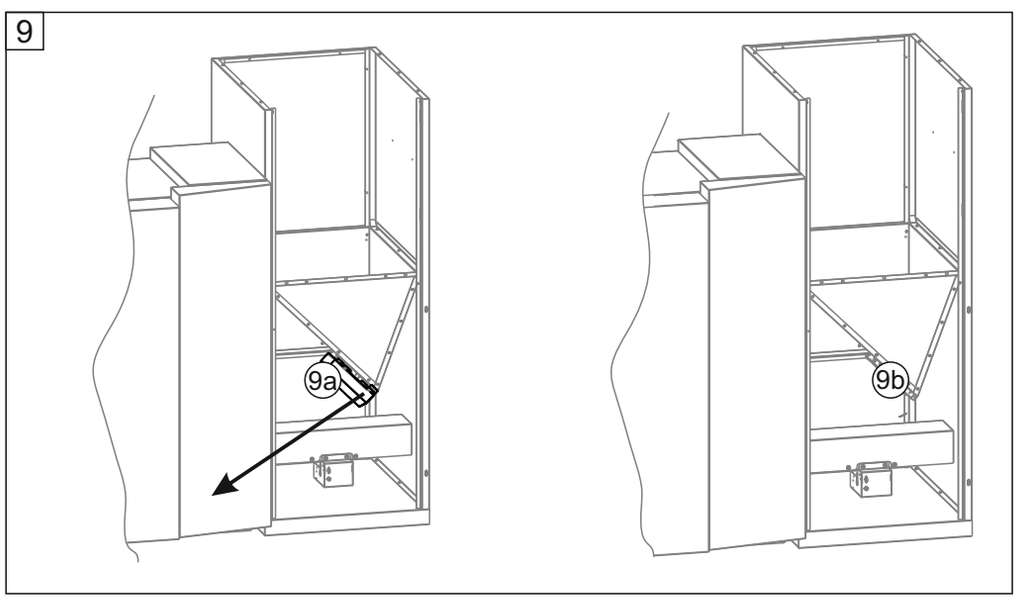


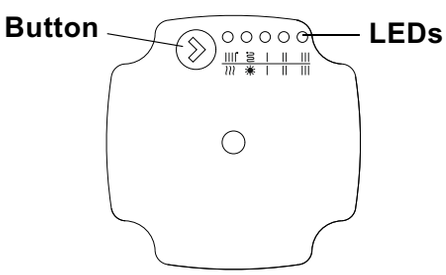
8.0. CIRCULATOR PUMP INSTALLATION

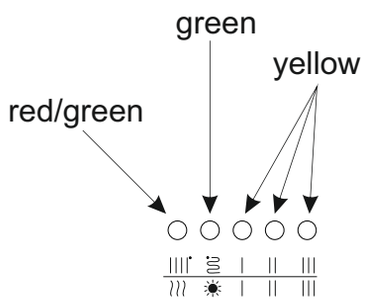
8.1. GRUNDFOS UPM3 HYBRID (25-70) (can be installed to PelTec II Lambda)

8.1.1. USER INTERFACE

The user interface is designed with a single push button, one red/green LED, one green and three yellow LEDs.

User interface with one button and five LEDs.





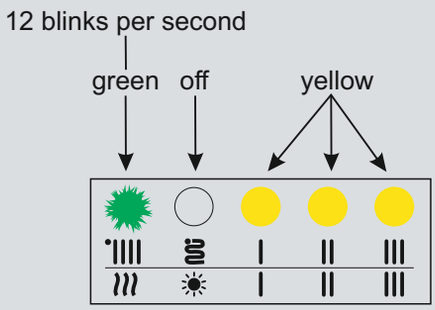
The user interface shows:
- operation status
- alarm status/errors

UPM3 HYBRID

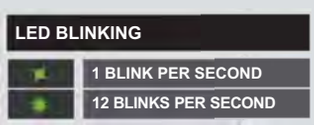
Circulator pump is either for external PWM signal control with profile A or C (is used here), or for internal control of two operating modes with $AUTO_{ADAPT.}$ (not used here)

8.1.2. POSSIBILITY OF ADJUSTING THE PUMP (it is recommended that the pump be operated at factory settings)

Controlling the user interface (setting the pump) is possible by pressing a button and following the display on the LED interface. The user interface displays the schedule by turning on/blinking/turning off each LED as shown in the tables below. The currently selected setting is always displayed on the interface, which can be changed with each button press.



FACTORY SETTING
(PWM A curve 3 signal on)



	Control mode	LED1 green	LED2 green	LED3 yellow	LED4 yellow	LED5 yellow
NOT IN USE	PP AA	●	○	○	○	○
	CP AA	○	●	○	○	○
	PP1	●	○	●	○	○
	PP2	●	○	●	●	○
	PP3	●	○	●	●	●
	CP1	○	●	●	○	○
	CP2	○	●	●	●	○
	CP3	○	●	●	●	●
	CC1	○	○	●	○	○
	CC2	○	○	●	●	○
	CC3	○	○	●	●	●
	PWM C signal off	○	✸[1]	●	●	●
	PWM C signal on	○	✸[2]	●	●	●
	PWM A curve 1 signal off	✸[1]	○	●	○	○
	PWM A curve 1 signal on	✸[2]	○	●	○	○
	PWM A curve 2 signal off	✸[1]	○	●	●	○
	PWM A curve 2 signal on	✸[2]	○	●	●	○
	PWM A curve 3 signal off	✸[1]	○	●	●	●
FACTORY SETTING	PWM A curve 3 signal on	✸[2]	○	●	●	●

✸[1] 1 blink per second

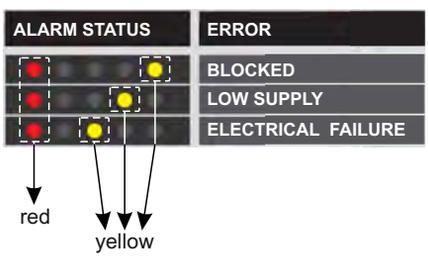
✸[2] 12 blinks per second

Note: Each time you press the button the pump setting changes.

8.1.3. ALARM STATUS/ERRORS

If the pump detects one of the alarms, the 2-color LED 1 changes color from green to red. When is it alarm active, LEDs show the type of alarm according to the table below. If several alarms are active at the same time, the LEDs show only the highest priority alarm. Priorities are determined according to the schedule in table. If there is no active alarm, the operating mode is displayed.

Pump screen	Meaning	Pump operation	Counter action
1 red LED + 1 yellow LED (LED 5)	Rotor is blocked.	Try to operate again.	Wait or unblock the shaft.
1 red LED + 1 yellow LED (LED 4)	Supply voltage is too low.	Only warning, pump runs.	Check supply voltage.
1 red LED + 1 yellow LED (LED 3)	Electrical failure.	Pump is stopped because supply voltage is too low or serious failure has occurred.	Check supply voltage / replace the pump.

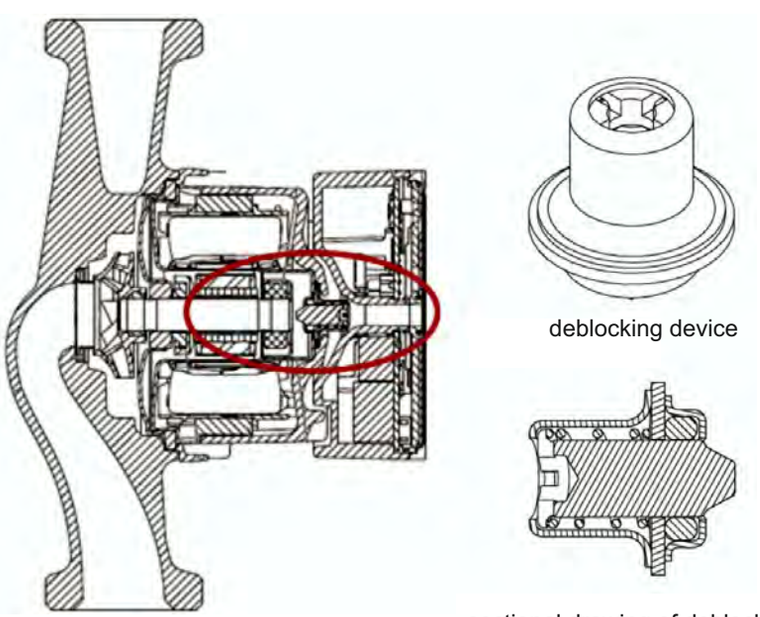


8.1.4. GRUNDFOS UPM3 ANTI BLOCKING CONCEPT

UPM3 has a double safety de-blocking system:
- deblocking software
Continuous restart after 1,33 seconds with a maximum torque of 24.8 Ncm.
- deblocking device
Manual deblocking device, accessible from front side without demounting the controller box.

Deblocking device

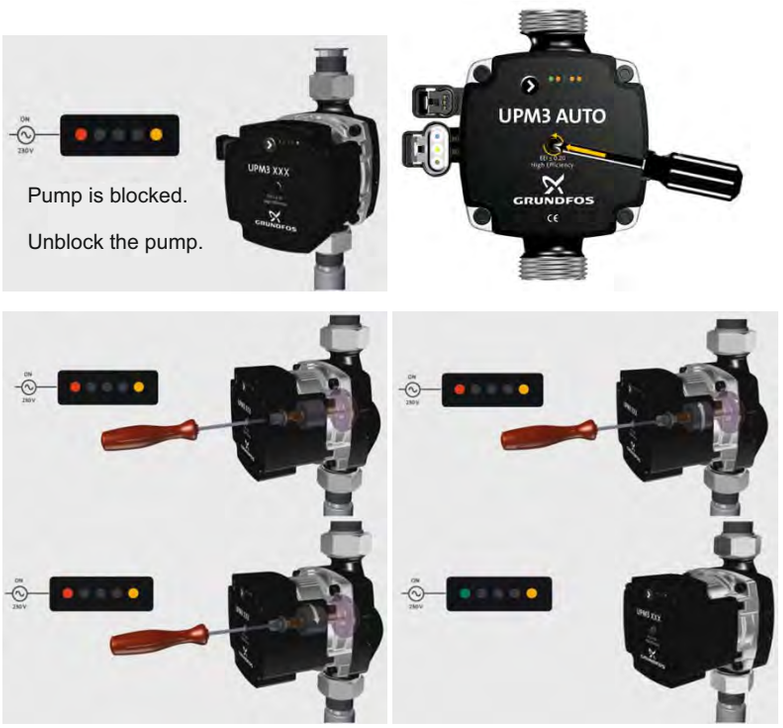
Deblocking device consists of an axially movable plunger secured with an O-ring and a retracted spring inside a stainless steel housing that is welded to the rotor. It is made for pumps integrated into the device so that the pump can be accessed from the front without demounting the controller box. By pushing and turning the screwdriver, the plunger pushes the shaft axially into the pump until it can rotate. The force is sufficient to unblock the pump where limescale has accumulated, for example if the device was tested wet and stored for a long time. Before, during and after unblocking, the device must tight and must not leak water.



sectional drawing of deblocking device

Pump is blocked

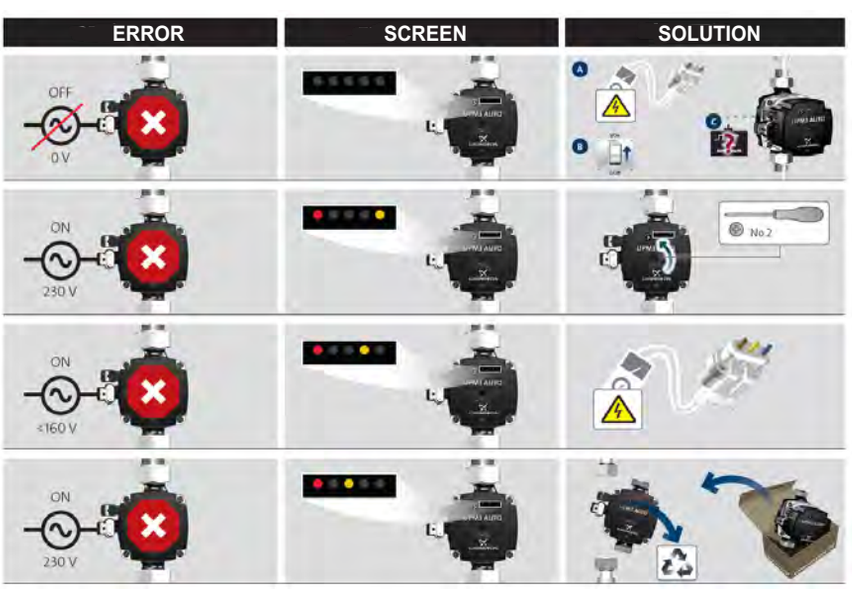
If the pump or system is filled with water for the first time and the pump is stopped for alonger period (several weeks or months), it might happen that the pump is not able to start. The pump tries to start with a cycle every 1.33 seconds and the display shows LED 1 = red and LED 5 = yellow.
In this case, please use a screwdriver and put it in the hole in the middle of the front plate. Push it towards the pump and move it counter clockwise. Probability, the pump will start.



Note:

In some cases pump cannot be unblocked with screwdriver. If this happens pump must be disassembled and rotor blades must be turned (unblocked) by hand.

Error finding



Warning: Before starting any work at the pump, switch off the power supply. Make sure that the power supply cannot be switched on accidentally.

Warning:
This appliance can be used by children over 8 years old and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they are under have been given supervision or if they are given instruction concerning use of the appliance in a safe way and if they understand the involved hazards. Children must not play with the appliance. Children must not clean or maintain the device without supervision.

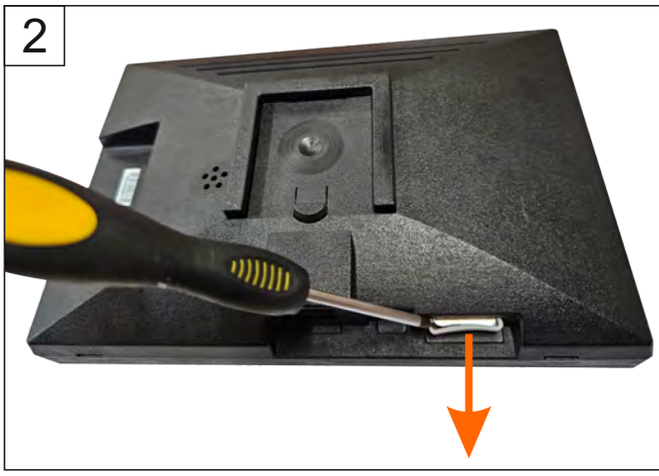
9.0. CHANGING THE BOILER CONTROL UNIT SCREEN BATTERY (CR 1632)

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).

1

2



3

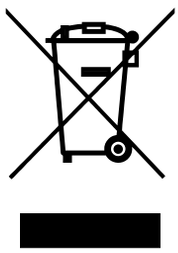
4

5

6

CORRECT DISPOSAL OF THIS PRODUCT

Your boiler is marked in accordance with Directives: 2006/42/EC, 2014/30/EU, 2014/35/EU and contains electrical components.
According to EU Regulation 2015/1189 implementing Directive 2009/125/EC with regard to Eco-Design requirements for solid fuel boilers, we draw your attention to the following:



MARK FOR MARKING SEPARATE EE WASTE COLLECTION

This marking on the product indicates that the product contains electrical and electronic parts and must be disposed of separately, it must not be mixed with other waste. Your boiler is labeled in accordance with the Waste Electrical and Electronic Equipment Regulation (WEEE) and can be returned through the return and collection system available to you.

Household users should contact the retailer from whom they purchased this product, their local distributor, or their state agency for details on where and how to dispose of this product. Business users should contact their supplier and review the terms of the sales contract or contact a government agency for details on where and how to dispose of this product.

(EU) 2017/1369

Centrometal
TEHNIKA GRIJANJA
GLAVNA 12, HR-40306 MACINEC - HRVATSKA

Naziv dobavljača / Ime dobavitelja / Supplier name / Name des Lieferanten / Le nom du fournisseur ou la marque commerciale / De naam van de leverancier / Piegādātāja nosaukums A szállító nevét / Szállító neve / Název dodavatel / Meno dodávateľa / Nome del fornitore / Navn på leverandøren:		**Centrometal d.o.o.**				
Dobavljačeva identifikacijska oznaka modela / Dobaviteljeva identifikacijska oznaka modela / Supplier model identifier / Modellkennung des Lieferanten / La référence du modèle donnée par le fournisseur / De typeaanduiding van het model van de leverancier / Piegādātāja modeļa identifikators / A szállító által megadott modellazonosítót / Identifikační značka modelu používaná dodavatel / Identifikačný kód modelu dodávateľa / Codice identificativo del modello del fornitore / Leverandørmodellens id-mærke:		**PelTec II Lambda**				
		12	18	24	36	48
Razred energetske učinkovitosti / Razred energijske učinkovitosti / Energy efficiency class / Energieeffizienzklasse / La classe d'efficacité énergétique du modèle / De energie-efficiëntieklasse van het model / Modeļa energoefektivitātes klase / Energiahatékonysági osztályát / Třída energetické účinnosti / Trieda energetickej účinnosti / Classi di efficienza energetica / Energieffektivitetsklasse:		A+	A+	A+	A+	A+
Nazivna toplinska snaga / Nazivna izhodna moč / Rated heat output / Nennwärmeleistung / La puissance thermique directe / De nominale warmteafgifte / Izteikta nominālā siltuma jauda / Mért hőteljesítmény / Jmenovitý tepelný výkon / Menovitý tepelný výkon / Potenza termica nominale / Nominel varmeydelse:	(kW)	12	18	24	36	48
Indeks energetske učinkovitosti / Indeks energijske učinkovitosti / Energy efficiency index / Energieeffizienzindex / L'indice d'efficacité énergétique / De energie-efficiëntie-index / Energoefektivitātes indekss / Energiahatékonysági mutatót / Index energetické účinnosti / Index energetickej účinnosti / Indice di efficienza energetica / Energieffektivitetsindeks:		116	119	121	121	122
Sezonska energetska učinkovitost grijanja prostora / Sezonska energijska učinkovitost pri ogrevanju prostorov / Seasonal space heating energy efficiency / Raumheizungs-Jahresnutzungsgrad / L'efficacité énergétique saisonnière pour le chauffage des locaux ηS / De seizoensgebonden energie-efficiëntie voor ruimteverwarming / Telpu apsildes sezonas energoefektivitāte / Szezonális helyiségfűtési hatásfok / Sezonní energetická účinnost vytápění / Sezónna energetická účinnosť vykurovania priestoru / Efficienza energetica stagionale del riscaldamento d'ambiente / Sæsonmæssig energieffektivitet ved rumopvarmning:	(%)	79	80	82	83	83

- Poštivajte upozorenja i smjernice za ugradnju i periodično održavanje navedene u poglavljima ovog priručnika s uputama.
- Upoštevajte opozorila in navodila za namestitev in redno vzdrževanje, navedena v poglavjih priročnika z navodili.
  Varnostni ukrepi, ki se sprejmejo pri sestavljanju, montaži ali vzdrževanju kotla:
  Kotel ne sme delovati v vnetljivi in eksplozivni atmosferi.
  Pred kakršnim koli posegom na napravi mora biti izklopljeno vse električno napajanje.
- Comply with the warnings and instructions concerning installation and routine maintenance provided in the instruction manual.
- Beachten Sie die Warnungen und Hinweise betreffend die Installation und regelmäßige Wartung in den Kapiteln der Bedienungsanleitung.
- Respecter les avertissements et les indications sur l'installation et l'entretien périodique fournis dans les chapitres du manuel d'instructions.
- Neem de waarschuwingen en instructies voor installatie en periodiek onderhoud in acht zoals aangegeven in de hoofdstukken van de gebruiksaanwijzing.
- Kövesse a használati útmutató. fejezetében közölt Wgyelmeztetéseket, beépítési utasításokat és az időszakos karbantartásra vonatkozó előírásait.
- Dodržujte varování a pokyny pro instalaci a pravidelnou údržbu, které jsou popsány v kapitolách návodu k obsluze.
- Dodržujte varovania a pokyny pre inštaláciu a pravidelnú údržbu, ktoré sú opísané v dodanom návode na obsluhu.
- Seguire le avvertenze e le linee guida per l'installazione e la manutenzione periodica elencate nelle sezioni di questo manuale di istruzioni.
- Følg advarsler og retningslinjer for installation og periodisk vedligeholdelse, der er anført i afsnittene i denne brugsanvisning.

Centrometal

HEATING TECHNIQUE

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