Centrometal
HEATING TECHNIQUE

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TECHNICAL INSTRUCTIONS

CE

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

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

PelTec 12-48
PelTec-lambda 12-96

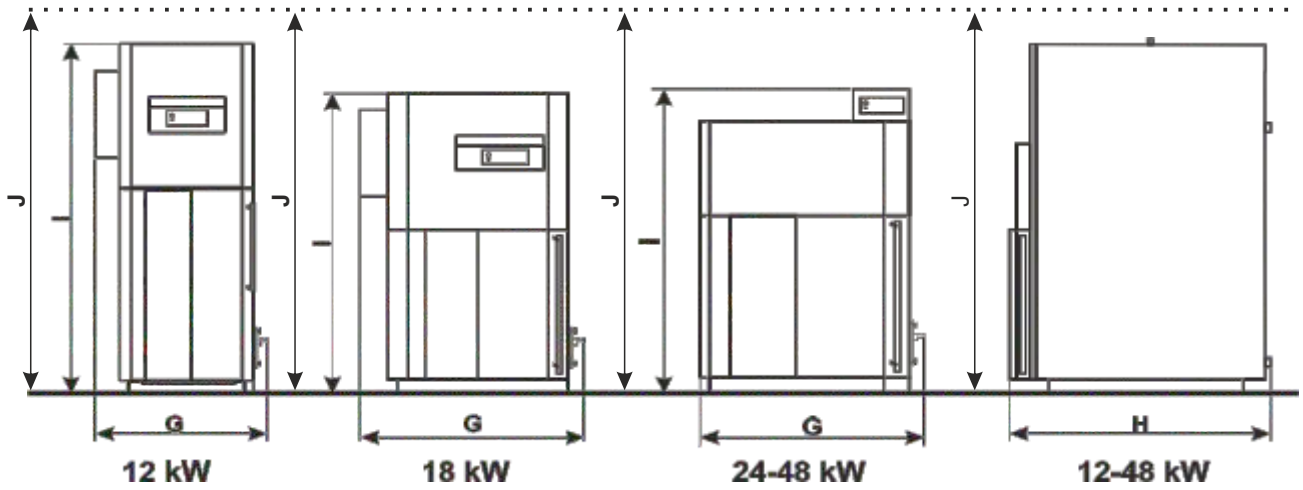
TUPLT/PLT-L-12-96-05-2019-ENG

TECHNICAL INFORMATION

Type			PelTec / PelTec-lambda 12	PeTec / PelTec-lambda 18	PeTec / PelTec-lambda 24	PeTec / PelTec-lambda 36	PelTec / PelTec-lambda 48	PelTec-lambda 69	PelTec-lambda 96
Nominal heat output		(kW)	12	18	24	36	48	69	96
Heat output range		(kW)	3,6-12	5,4-18	7,2-24	10,8-36	14,4-48	20,7-69	28,8-96
Boiler class			5	5	5	5	5	5	5
Required chimney underpressure		(mbar)	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Water amount in boiler		(lit.)	78	76	100	108	135	190	205
Exhaust gas temperature at nominal heat output		(°C)	130	130	130	130	130	130	130
Exhaust gas temperature at minimal heat output		(°C)	100	100	100	100	100	100	100
Exhaust mass flow at nominal heat output		(g/s)	15,16	18,97	22,78	35,27	47,75	59,05	73,57
Exhaust mass flow at minimal heat output		(g/s)	5,82	6,91	8	13,1	18,05	23,85	31,34
Combustion period		(h)	-	-	-	-	-	-	-
Min. inlet water tem. at the boiler supply water conne.		(°C)	-	-	-	-	-	-	-
Setting range for temperature controller		(°C)	65-90	65-90	65-90	65-90	65-90	65-90	65-90
Minimal return temp.at boiler return tapping		(°C)	> 0°C						
Standby heat losses		(W)							
Boiler resistance on water side at nominal output		***mbar	2.5	5.5	9.5	20.5	37	17	32
Fuel type			wood pellets: **C1** (EN 303-5:2012); **A1** (EN ISO 17225-2)						
Fuel moisture content		(%)	maximum 12 %						
Fuel size		(mm)	Ø6 x 50						
Firebox volume		(lit.)	0,942	1,59	1.59	2,56	2,56	4	5,4
Combustion chamber dimensions		(mm)	465x300x300	650x300x300	650x300x300	620x385x385	770x385x385	770x385x385	770x450x410
Combustion chamber volume		(lit.)	41,85	58,5	58.5	91,90	114,13	129,26	145,33
Combustion chamber type			underpressure						
Pellet tank volume		(lit.)	340					530	
Volume of ash boxes (left / right)		(lit.)	9,9 / -	6,5 / 9,9	9,9 / 9.9	11,6 / 17,7	13 / 19,6	24,5 / 19,6	29 / 25
Required minimum accumulation next to boiler			by EN 303:2012 - point 4.4.6						
Auxiliray power requirements at Q_N		(W)	1050	1050	1050	1100	1100	1300	1300
Auxiliray power requirements at Q_{min}		(W)							
Supply voltage		(V~)	230						
Frequency		(Hz)	50						
Boiler body dimensions	Lenght (A)	(mm)	1105	1105	1080	1160	1175	1240 / *1720	1310 / *1790
	Width (B)	(mm)	1200	1420	1400	1485	1485	1940	1965
	Height (C)	(mm)	1560	1560	1560	1560	1560	1560	1560
Total mass - (boiler with tank and feeder screw)		(kg)	328	349	402	455	478	730	830
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	200	200
Dimension D*/D**		(mm)	1515 / 1235	1040 / 765	1140 / 855	1160 / 855	1310 / 995	1345 / 1305	1345 / 1305
Dimension E		(mm)	135	125	130	120	115	150	150
Dimension F		(mm)	555	510	495	555	555	660	660
Boiler connections	Flow and return pipe (female thread)	(G)	5/4"	5/4"	5/4"	5/4"	5/4"	6/4"	6/4"
	Charge/discharge (female thread)	(G)	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Heating appliance running			with fan						
Heating appliance running			under non-condensing conditions						

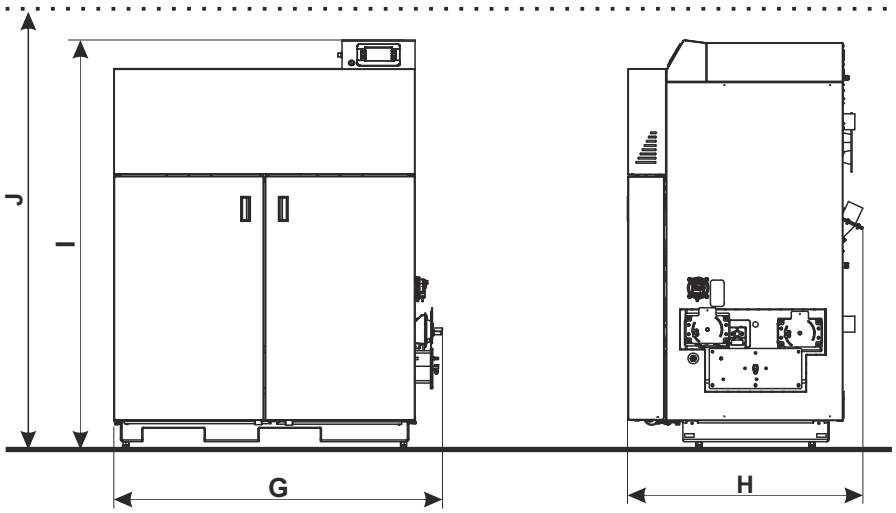
* possible way of installing the fan (output is directed up)
** possible way of installing the fan (output is directed sideways)
*** dT=20°C

Dimensions of the boiler to enter the room	12 kW	18 kW	24 kW	36 kW	48 kW
Width (G)	650	880	855	945	945
Depth (H)	760	760	760	840	840
Height (I)	1560	1275	1340	1340	1490
Min. room height for turbulators removing (J)	1900	1700	1700	1700	2000



Dimensions of the boiler to enter the room	69 kW	96 kW
Width (G)	1220	1245
Depth (H)	815	885
Height (I)	1550 (+30 mm)*	1530 (+30 mm)*
Min. room height for turbulators removing (J)	2050 (+30 mm)*	2050 (+30 mm)*

* height can be adjusted +30 mm from this dimension

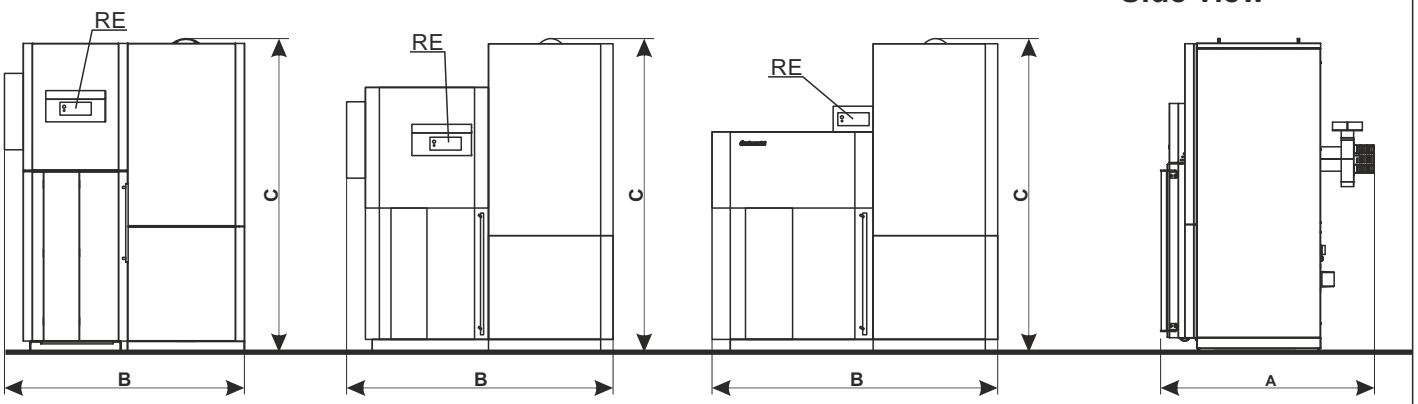


69/96 kW **69/96 kW**

PLV - Boiler flow
PVV - Boiler return
PP - Charge / Discharge
DP - Flue gas tube
VE - Fan (fan output can be mounted in any directions)
SP - Pellet tank
PT - Pellet feeder
RP - Pellet level sensor
SG* - Safety airvent group (not included in delivery)
PG - Pump group
PE - Connection for expansion vessel
FC - Flexible PVC tube
TP - Thermal protection exchanger (only 69/96)
TU - Temp. sensor tube (probe)
TPC - Cover lid - thermic valve sensor probe
OP - Cover lid - boiler sensor
RE - Regulation

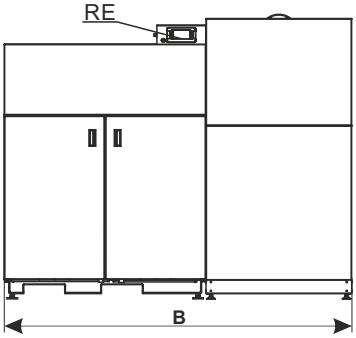
Front view

Side view



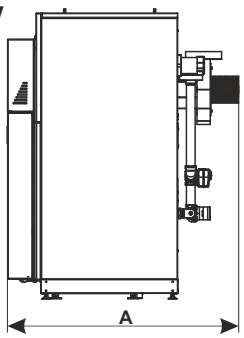
12kW **18kW** **24-48kW** **12-48kW**

Front view



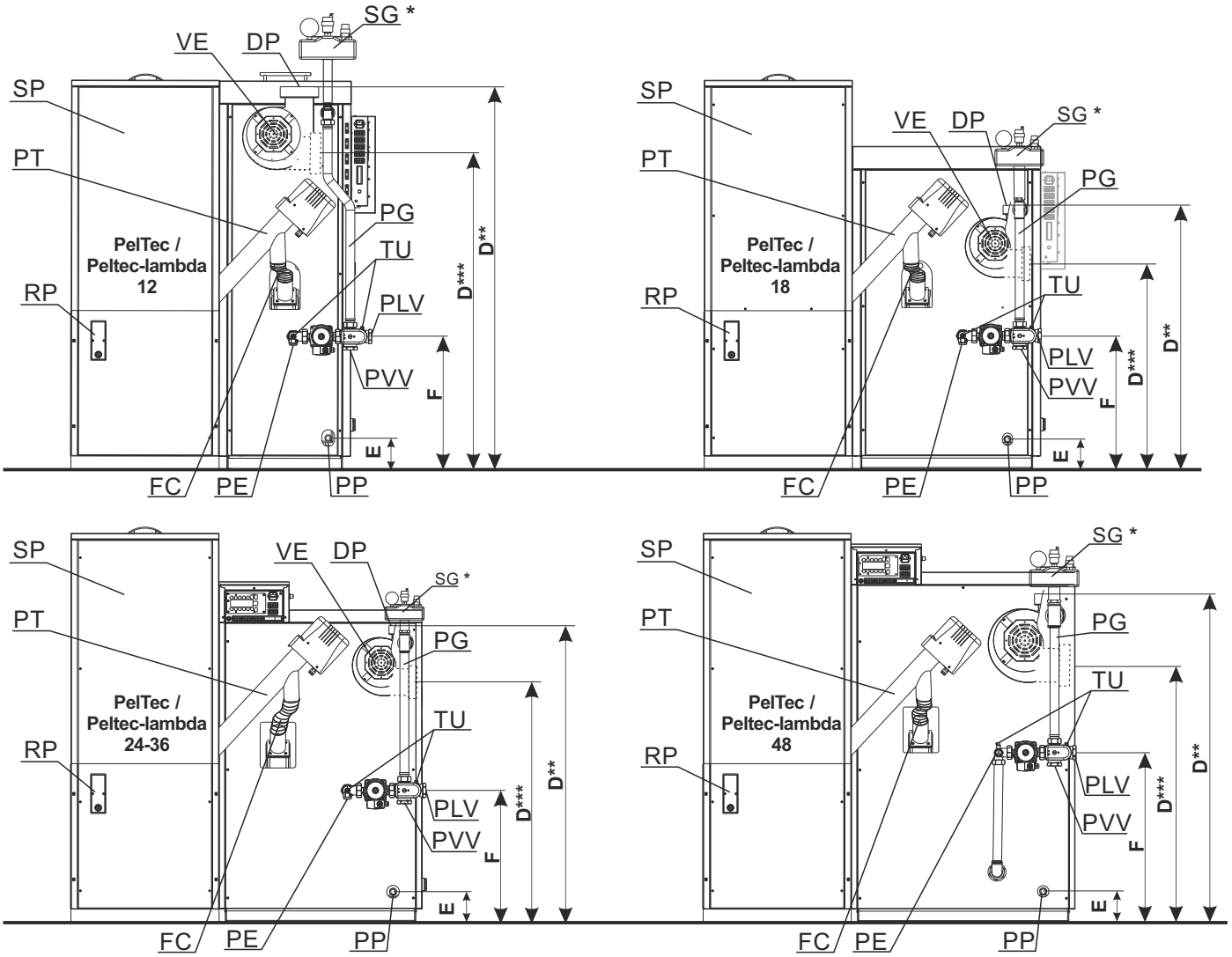
69/96 kW

Side view

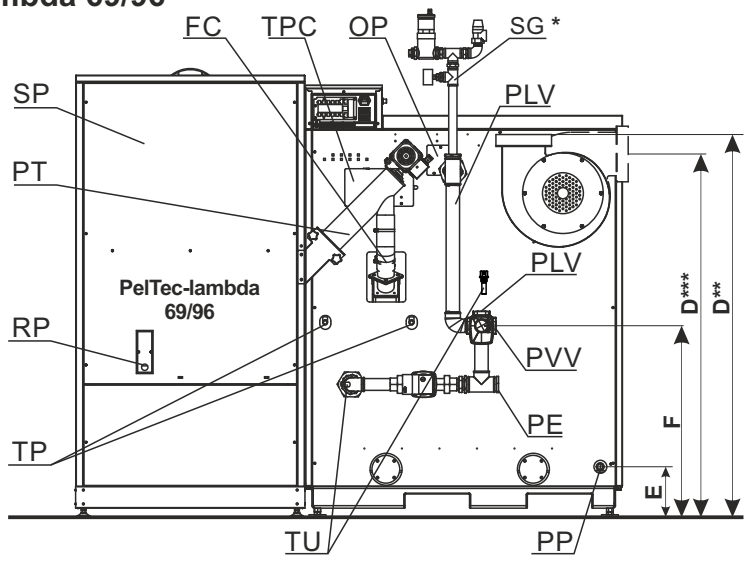


69/96 kW

Back view - PelTec / PelTec-lambda 12-48



Back view - PelTec-lambda 69/96



NOTE:

- main flow tube (probe) and sensor are used only in scheme 2 (DHC), 3 (DHCIIDHW) and 12 (DHCIIDHW(2))

- at boilers 69/96 for this schemes sensor tube (probe) is delivered and must be installed on the main flow, close after 4-way mixing valve (drill hole and make thread M10x1)

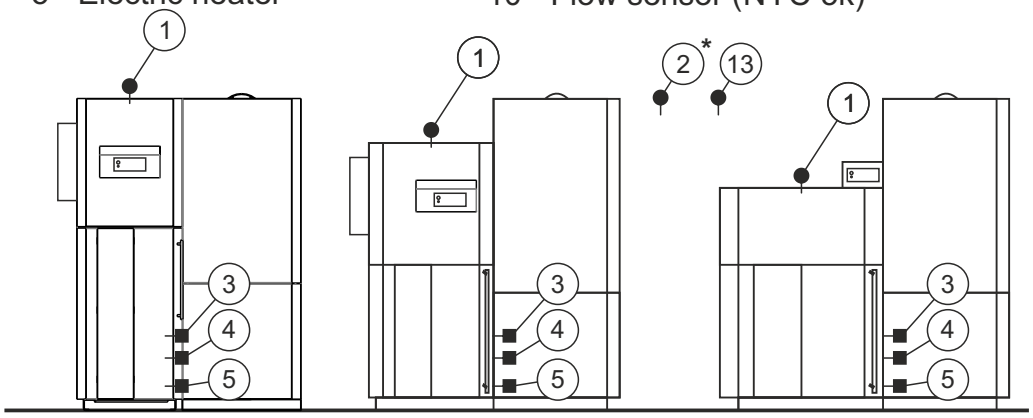
- sensor tube (probe) must be sealed

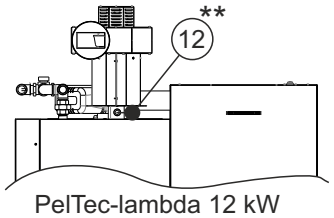
* not included in delivery

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

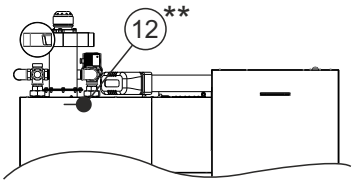
*** possible way of installing the fan (output is directed sideways)

***1 - Boiler sensor (NTC 5k)
*2 - DHW sensor (NTC 5k)
3 - Pressure switch
4 - Photocell
5 - Electric heater
6 - Flue gas sensor (Pt 1000)
7 - Fan speed sensor
8 - PVC tube bimetal sensor
9 - Pellet level in the tank
*10 - Flow sensor (NTC 5k)
11 - Return sensor (NTC 5k)
**12 - Lambda probe
13 - Outdoor sensor (NTC 5k)

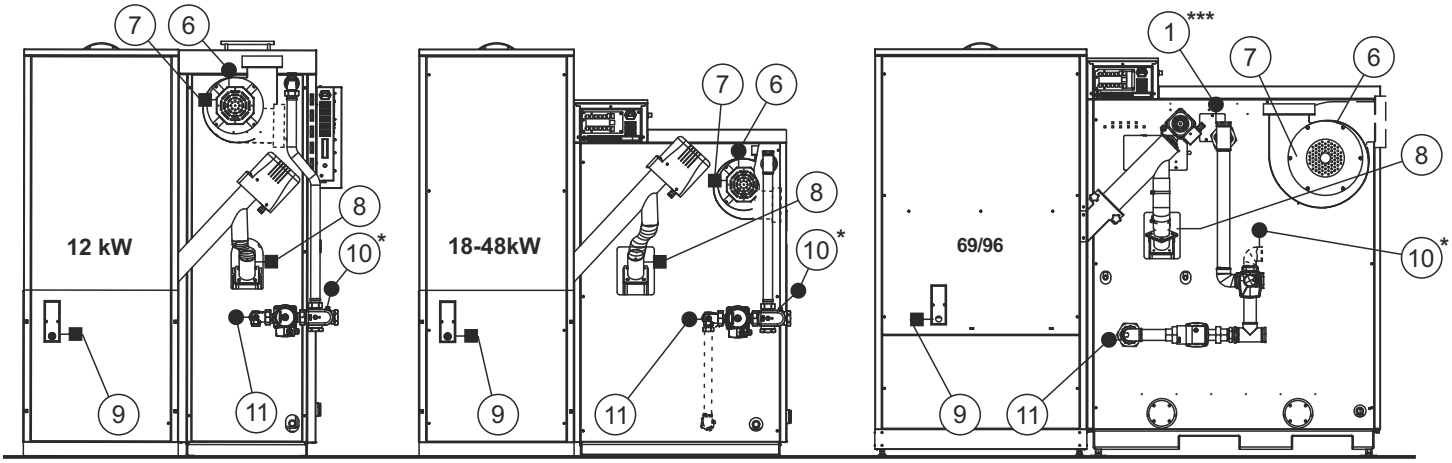




PelTec-lambda 12 kW



PelTec-lambda 18-96 kW



*depending on the configuration can be used as: DHW sensor, flow temperature sensor, accumulation tank sensor (CAS), hydraulic crossover (CRO)
**only PelTec-lambda
***only PelTec-lambda 69/96 - boiler sensor is located in the sensor tube in the boiler main flow tube (below boiler casing cover)

ADDITIONAL EQUIPMENT

CAL - alarm box (speaker/ LED)

Cm wifi-box (Internet supervision)

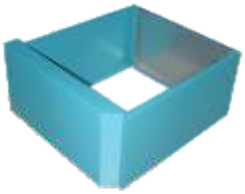
GSM Alarm module for mobile network

CM2K module for regulation 2 heating circuits

CMNET module for boiler cascade

Pelet suction system

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



1.0. INTRODUCTION

The **PelTec / PelTec 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 controller in a basic construction offers also the possibility of control with the additional equipment likes 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 / PelTec 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 beperformed only by appropriately qualified technicians.

Caution symbols:
Please take careful note of the following symbols in this Operating Manual.

	**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:**

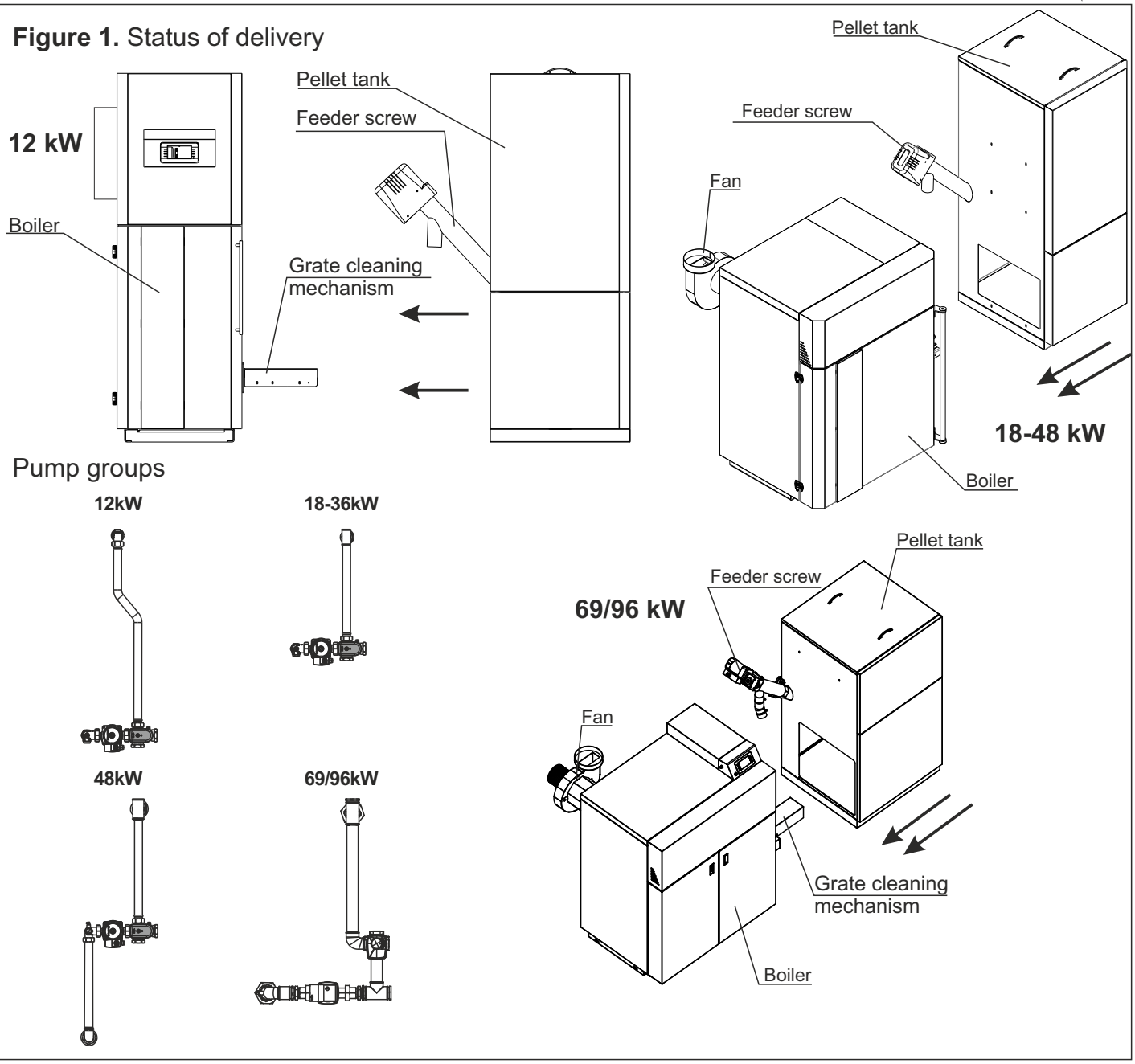
The flue may block if the boiler is heated again after a long period of it not being used. Before starting the boiler, have the flue checked by a specialist (chimney sweep).
Ensure sufficient supply of fresh air in the installation room when heating. The air must be replaced at least 0.8 times an hour 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:

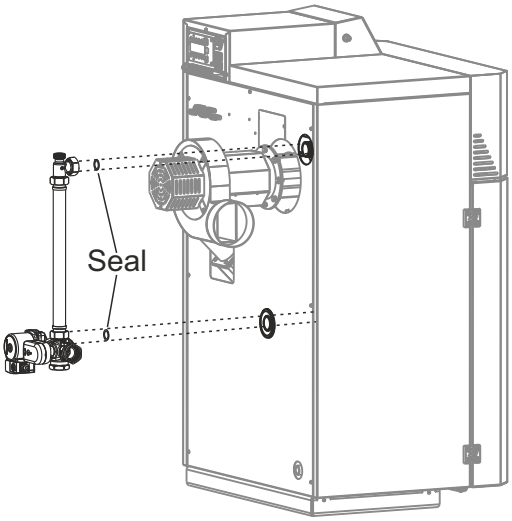
1. Boiler with planking and thermal insulation (only PelTec/PelTec Lambda 12-48)
2. Pellet tank in a cardboard box (the parts need to be mounted, see instructions for mounting the pellet tank)
3. Feeder screw with a flexible PVC tube (should be placed in the pellet tank)
4. Grate cleaning mechanism (requires 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, **Obligatory:** set the 3-speed pump on the speed 3 or max power for HE pumps.)
7. Oudoor sensor
8. Thermic protection valve (Caleffi 543, 98°C) - **only PelTec-lambda 69/96**

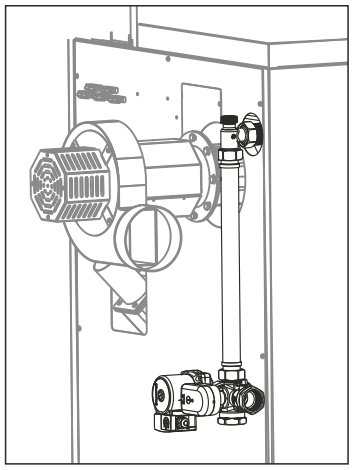
Figure 1. Status of delivery



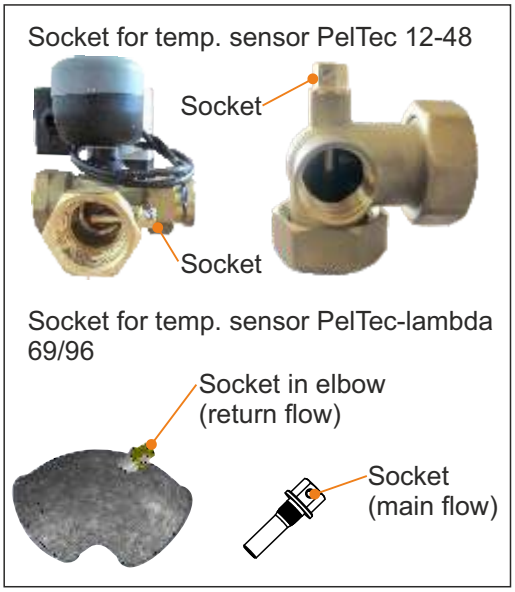
Pump group

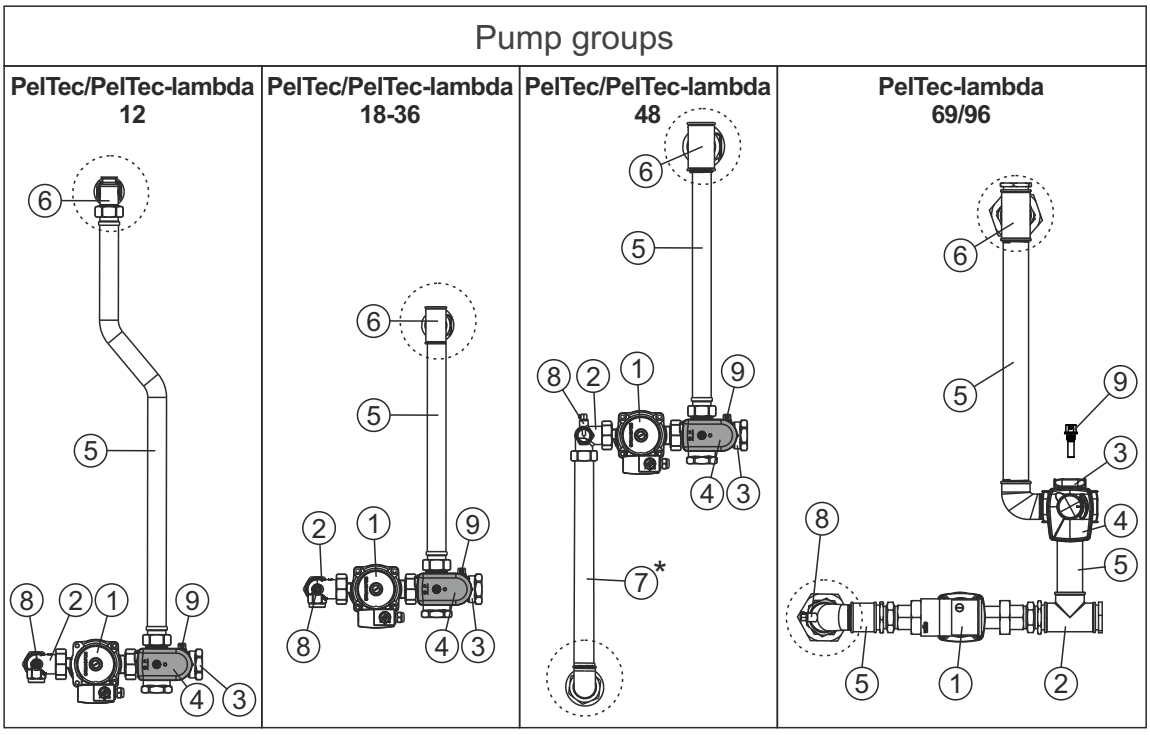
- mount pump group with 4-way mixing valve to the boiler so that the T-piece is in the upper side. On the upper connector of the T-piece incorporate safety ventilation group. On the back of boiler were prepared two holenders for mounting connection tubes (connection tubes with 4- way mixing valve). Be 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-in return flow sensor on the back of the box control. Connect the pump cable with connector to the back of the control box. **Mandatory** set the 3-speed pump on the speed 3 or max. power for HE pumps.





Example of installation pump group to the boiler PelTec/PelTec-lambda 18-36





LEGEND:

1. - Boiler pump P1
2. - Angled T-piece - return flow
3. - 4-way mixing valve
4. - Motor actuator
5. - Connecting pipe
6. - T-piece -flow
7. * - Lower pipe
8. - Return flow sensor tube
9. - Main flow sensor tube

*Only PelTec / PelTec-lambda 48

NOTE: check the tightness of connection tubes. Fasten connections binding tubes if necessary, so that a good seal.

Pellet level in the tank sensor

- mount this sensor on the back side inside of the pellet tank. First set the plastic glass distance for sensor. After that, put the sensor on this glass. Attach the sensor and the plastic distance with 4 screws supplied. Attach protective cover. Plug-in the cable with connector of the pellet level sensor on the back of the box control.

Pellet tank

- mount pellet tank according installation manual for mounting pellet tank. Set up pellet transporter in the pellet tank. Place the pellet tank to the boiler and set PVC tube to conveyor 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 control box.

1.5. MOUNTING COMPONENTS

For ease of handling, transport and import of boiler, PelTec / PelTec 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 M8 bolts and nuts. Plug-connector for power supply fan and the fan rpm sensor in the back of the control box. Fan output can be mounted in any directions.

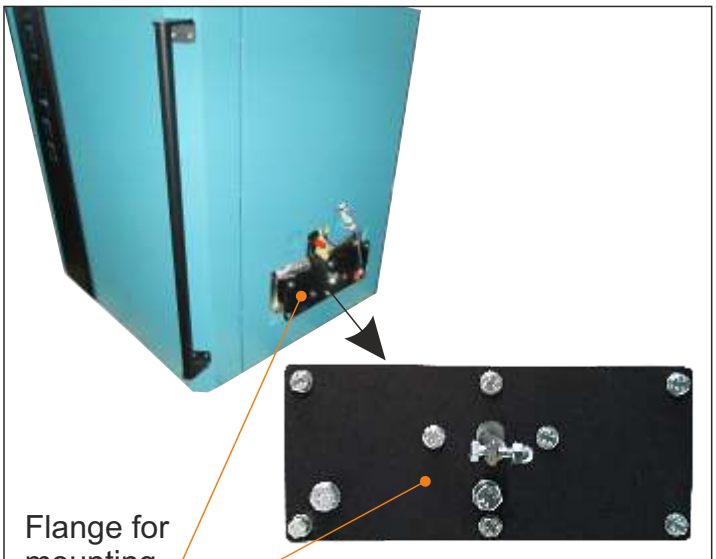
Fan

(Fan output can be mounted in any directions)

Flange for mounting fan

Mechanism for grating cleaning

- mount on the right side of the boiler (in this side is pellet tank), must be fastened using 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).

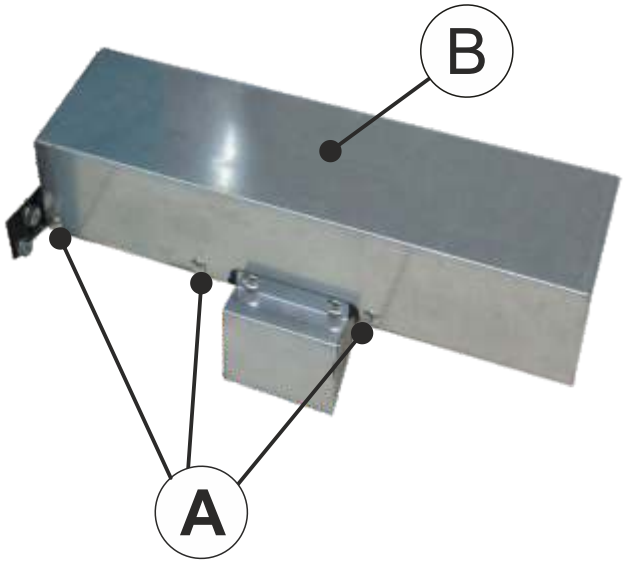


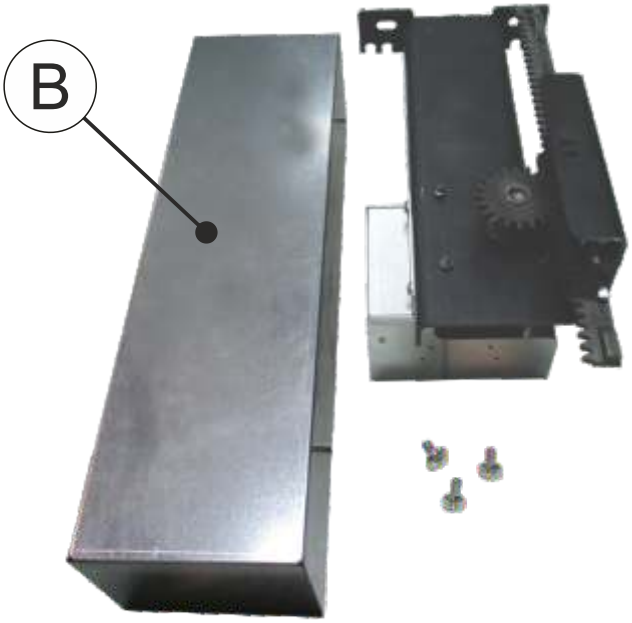
Flange for mounting mechanism for self-cleaning

Flange for mounting on the boiler

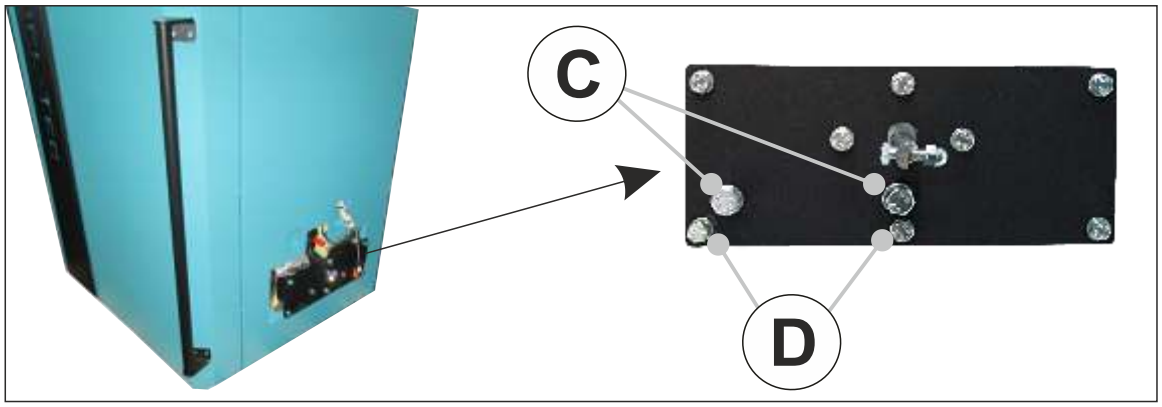
1.5.1. MOUNTING MECHANISM FOR GRATE CLEANING

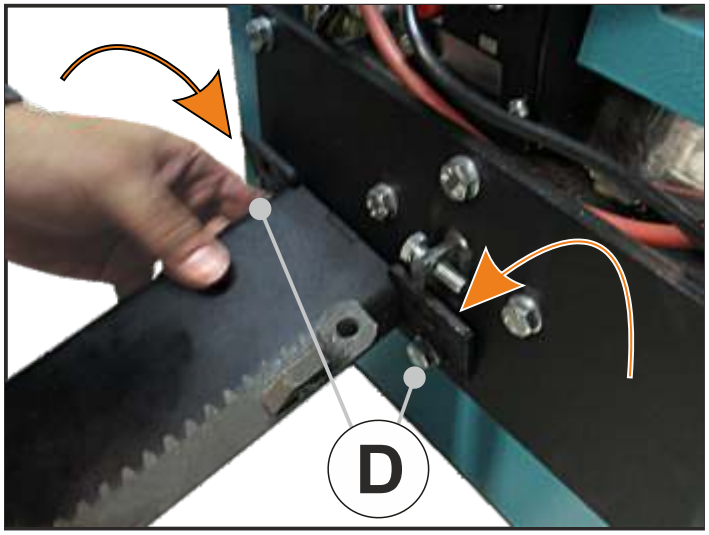
1. Remove the two screws (A), from cover (B) of the grate cleaning mechanism and remove cover carefully .

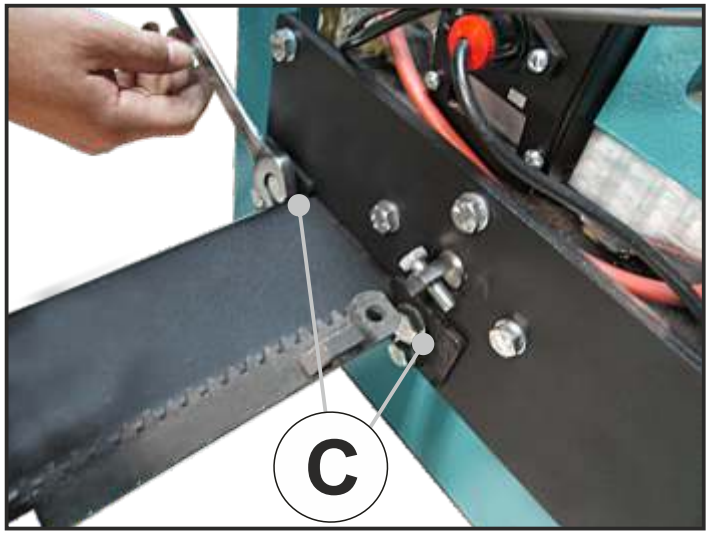


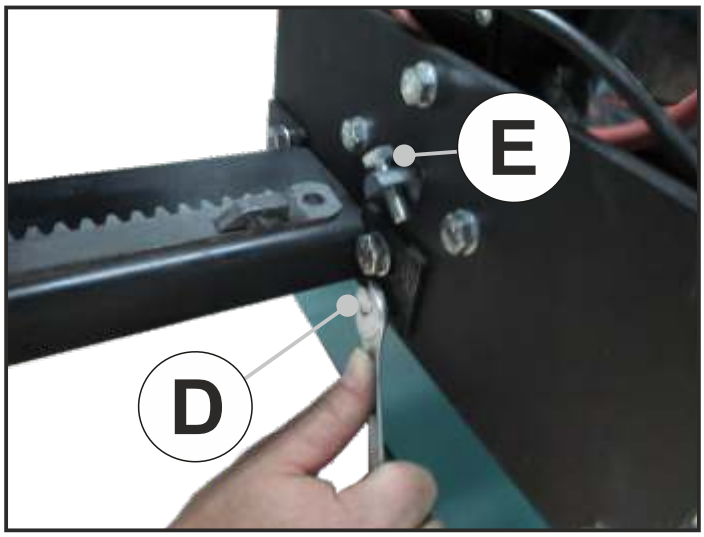


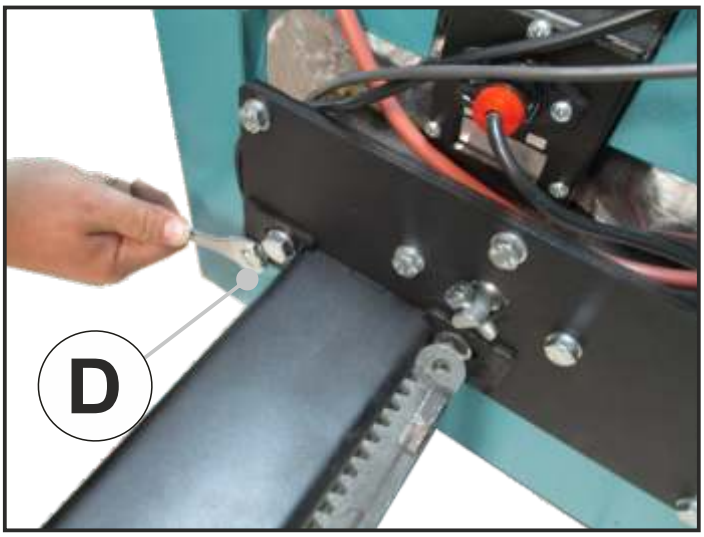
2. Remove the two screws (C) and just slightly loosen screws (D) as shown in picture below . Carefully attach grate cleaning mechanism to loose screws (D), then fasten with screws (C) and tighten the screws (D).



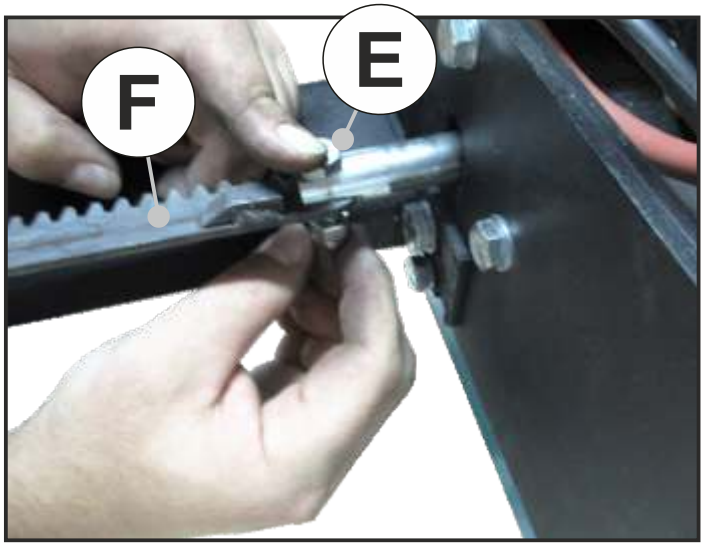


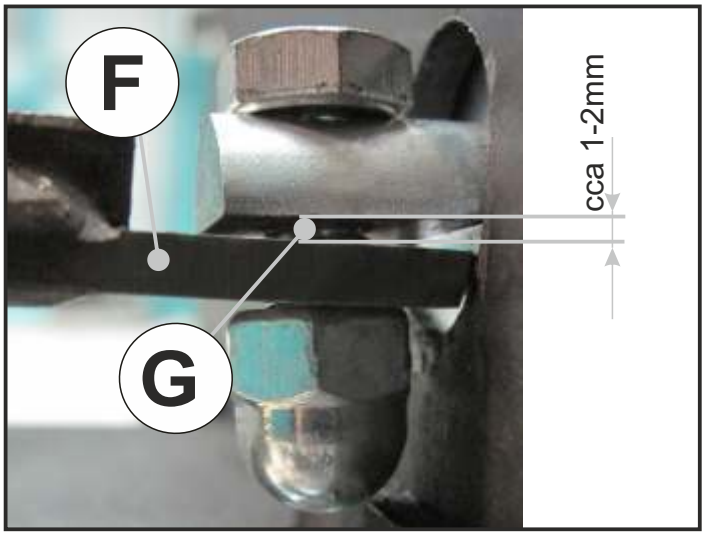




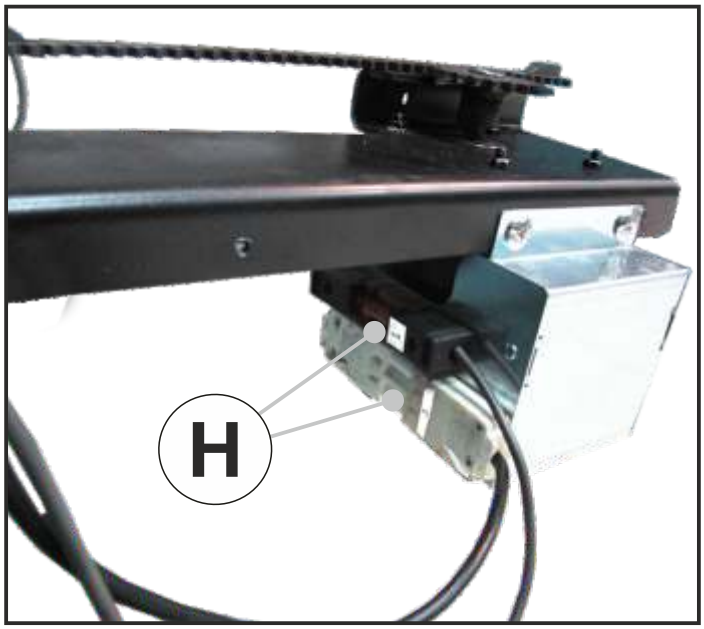


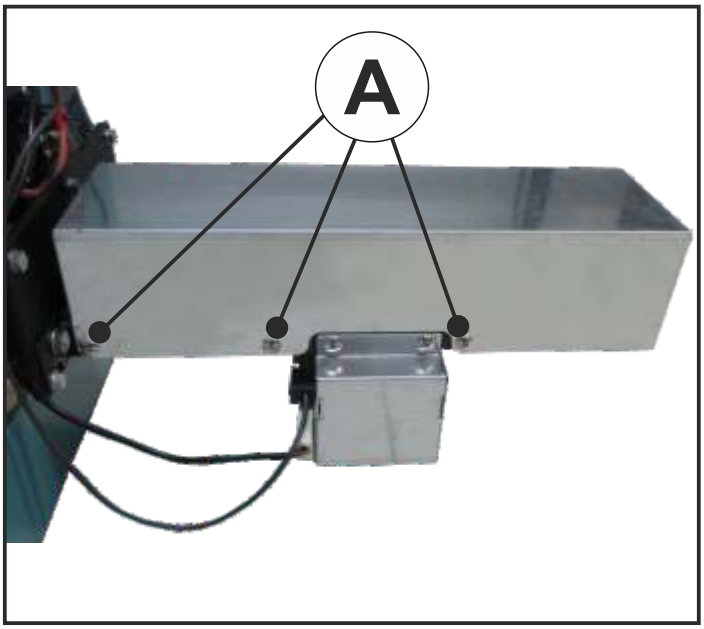
3. Set the screw (E) into the jagged track (F), set the nut on the screw and tighten. Free space (G) is required for the proper functioning of the mechanism.





4. Connect the connectors (H) so they have a good contact. Carefully set the cover and tighten with the screws (A).



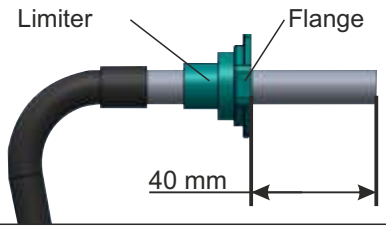


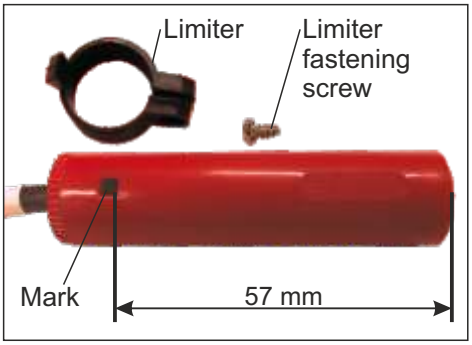
1.5.2. SETTING PHOTOCELL TO THE WORK POSITION

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 deliver - green photocell; as a spare part - red photocell).

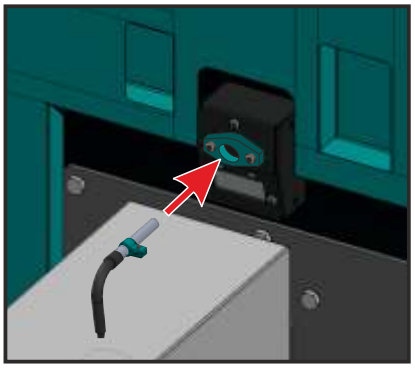
Factory installation position and distance photocell flange and limiter, ready for installtion





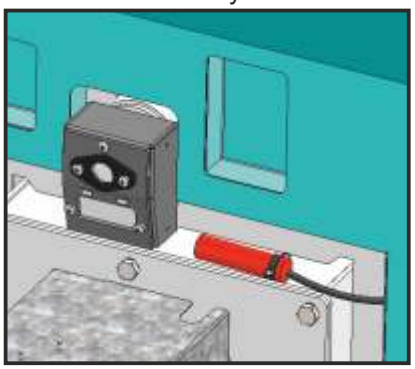
Limiter must be set so little black mark is visible according the picture (partitialy covered by limiter)

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

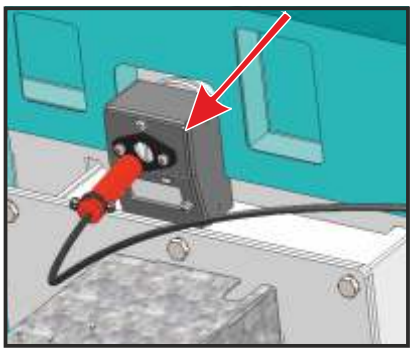


Correctly installed photocell
Boiler ready for operation

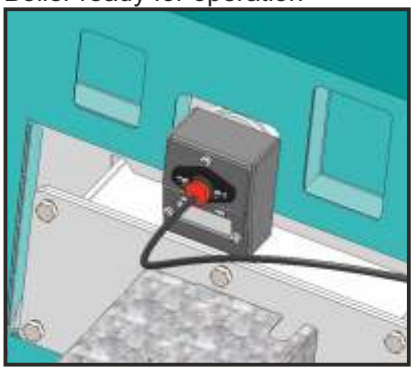
Photocell at delivery



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

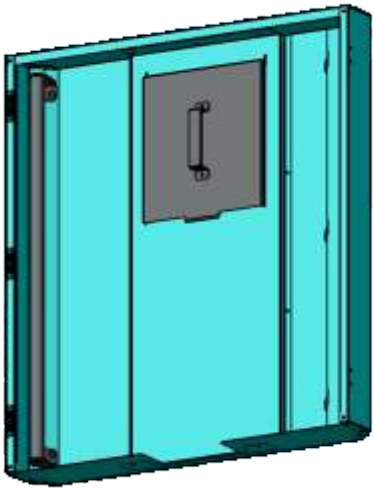


Correctly installed photocell
Boiler ready for operation

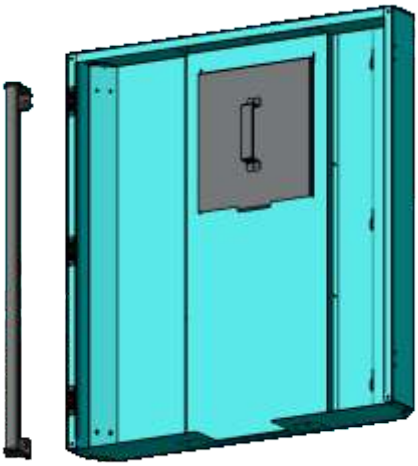


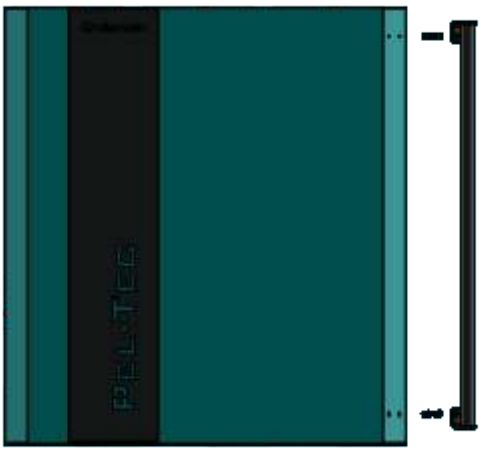
1.5.3. INSTALLATION OF THE HANDLE ON THE CASING COVER DOOR

1. **Status of delivery (24-48kW)**



2.





3.

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 burner shuts down and the error E3 appears on the control unit (LED diode switches on).
- If there is no flame (the built in photo-cell does not detect the flame within set time), control stops the burner operation and error E2 is displayed or it goes to blowing off and error E6 is displayed
- Displayed (LED diode switched on).Control unit has a built in protective function which protects the boiler against overheating. If temperature in the boiler exceeds 93°C, regardless heating or sanitary water is needed the boiler pump and/or the sanitary water 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 fan error
- Drive for grate linear move have in-built two switches by wich control unit monitor position of grate. If grate at given moment is not on provided place, control unit recieve information that grate is not on provided place and interrupt proces and display information about grate error.
- Flue gas connection have in-built sensor for flue gas temperature meassuring. If flue gas tube temperature is over 250°C, control unit interrupt proces and display information about too high flue gas temperature.
- When temperature in the boiler exceeds 110°C (+0°C / - 9°C), power supply is turned off by the safety thermostat (via control unit).
- Thermal protection built in coils of the fan electric motor at the burner and the screw feeder motor, 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.
- PelTec Lambda **69** and **96** have build in thermal protection exchanger. Thermal protection valve must be installed to it and connected to the water suppy to provide boiler cooling in case of overheating (**thermal protection valve is in standard delivery, Caleffi 543, 98°C**).

1.7. FUEL

Only wood pellets are used as fuel in PelTec / PelTec-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 ili 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 2) and simultaneously, enabling tending of boiler and additional equipment, control during operation, cleaning and maintenance.

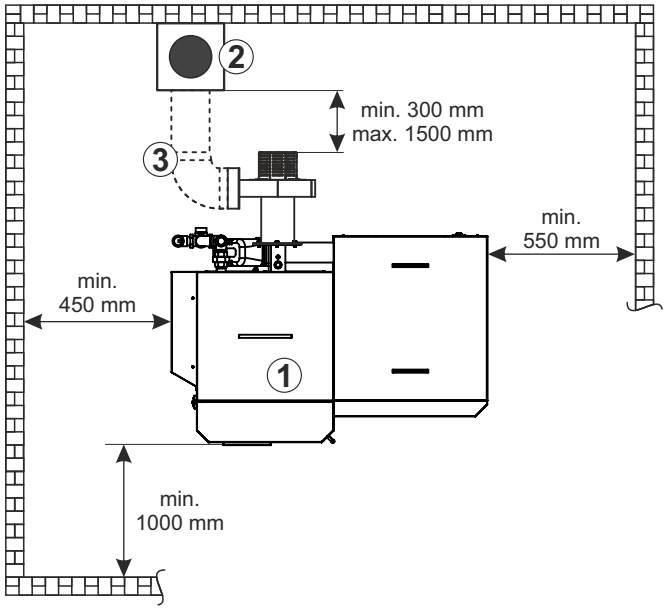
WARNING!

Flammable items must not be placed on the boiler and within the minimum distances shown in Figure 1.

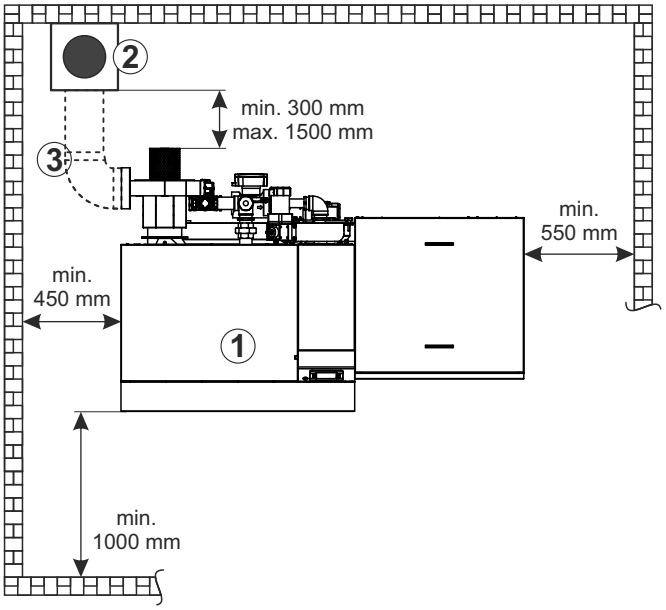
2.1. MINIMUM DISTANCE FROM THE ROOM WALLS

Figure 5. Minimum distance from the room walls for PelTec / PelTec-lambda

PelTec/PelTec Lambda 12-48



PelTec-lambda 69/96



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

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

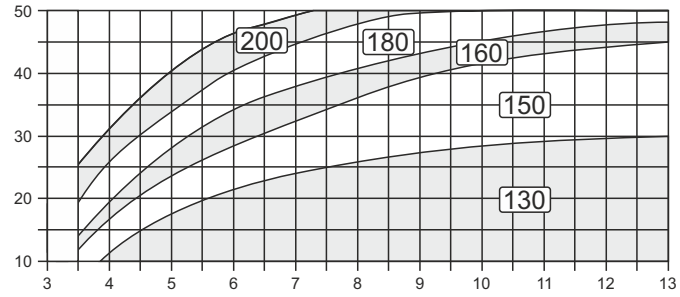
3.0. CONNECTION TO THE CHIMNEY

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.
Chimney must be dimensioned by "diagram for chimney selection" and maximum permitted length of connection flue gas tube between connection on fan and chimney is 2000 mm and minimum inner diameter same like boiler output, with maximum two 90° bends. 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 chim**ney. Connection flue gas tube between fan and chimney must be insulated with 30-50 mm mineral wool.**

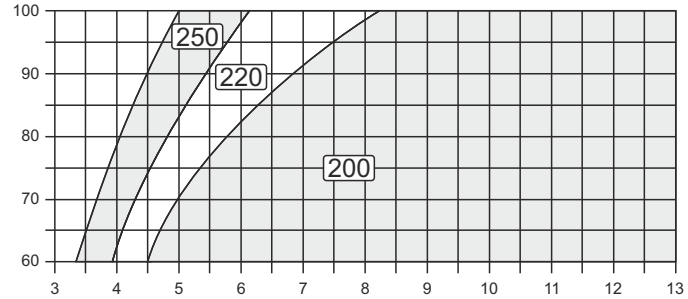
The chimney must be resistant against flue condensate!

Figure 6. Dimensioning of the chimney for PelTec / PelTec-Lambda

10-50 kW



60-100 kW



Chimney dimensioning examples:
for boiler PelTec / PelTec-Lambda 24 and 69

Boiler heat output:	***24*** *kW*	***69*** *kW*
Required usable chimney height:	***7,5*** *m*	***5*** *m*
Required inner chimney diameter:	***130*** *mm*	***200*** *mm*

Fuel: ***wood pellets***

Chimney dimensioning examples:

inner chimney diameter (mm) \ *boiler power (kW)*	*12*	*18*	*24*	*36*	*48*	*69*	*96*
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***	***5***	***8***
220	-	-	-	-	-	***4,5***	***6***
250	-	-	-	-	-	***4***	***5***

min. chimney effective height (m)

NOTES:
For flue gas tubes up to 2 m and 2 flue gas elbows look at the diagram.
Un 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(-Lambda) 12-18: +0,5 m
- PelTec(-Lambda) 24-48: +1,0 m
- PelTec-Lambda 69-96: +0,5 m

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

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 / PelTec 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 1. shows safe distances required for boiler cleaning and maintenance.

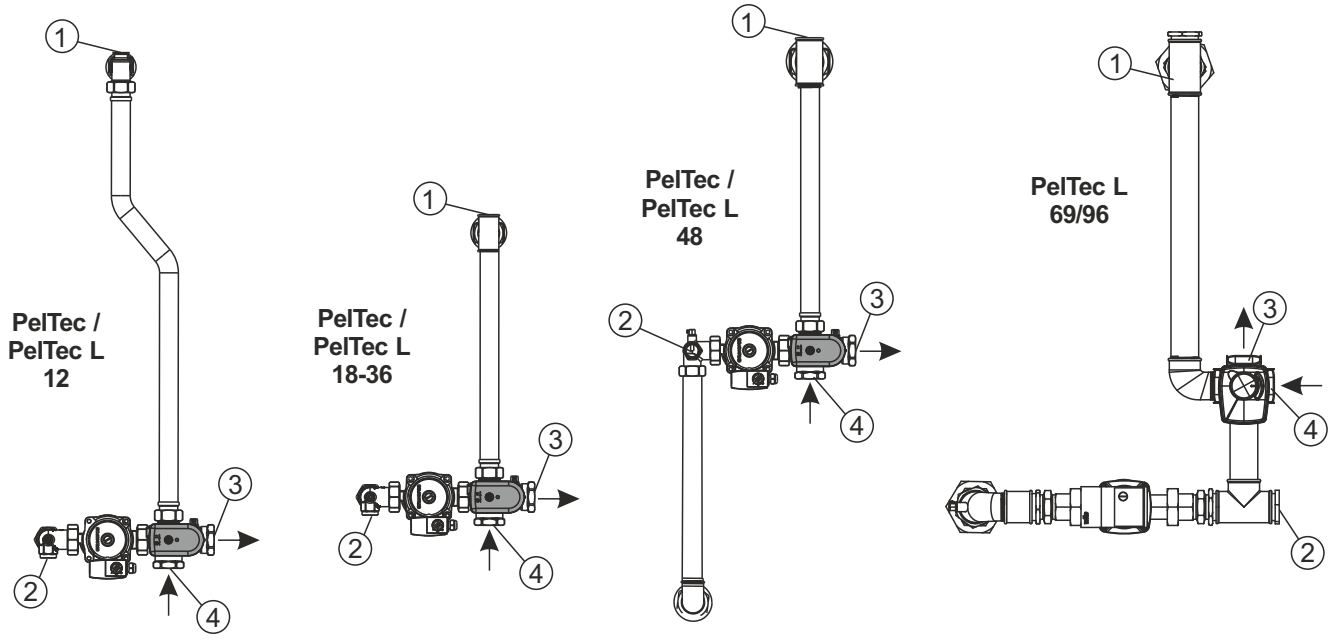
4.1.1. CONNECTION TO OPEN HEATING SYSTEM

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. The system pump could be connected on the inline or back line of the boiler.

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 7. Connections to connect the boiler to a closed heating system

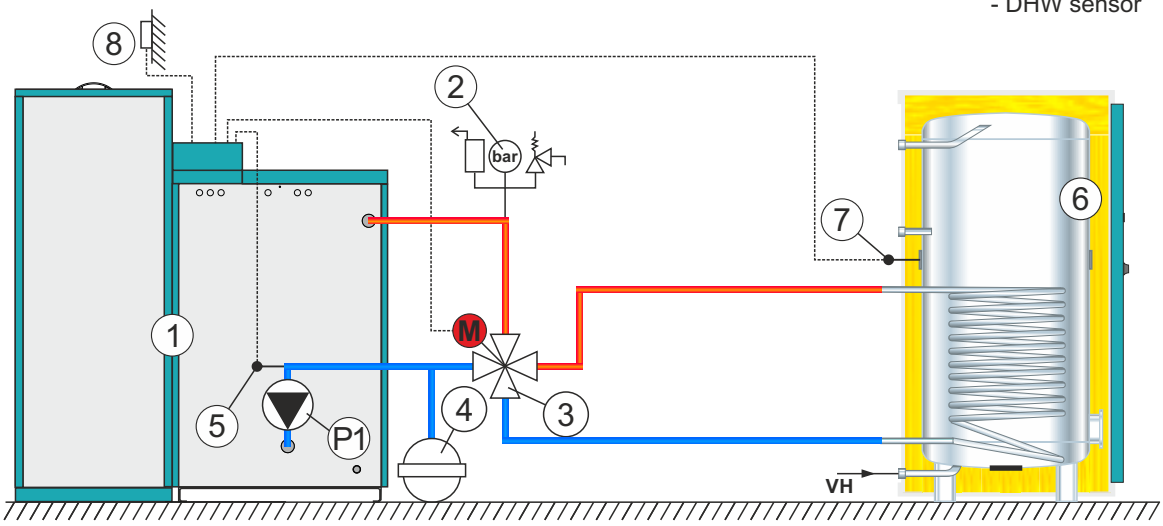


1 - Safety ventilation group connection
2 - Expansion vessel connection
3 - Main flow to installation
4 - Return flow from installation

NOTE:
- at PelTec-lambda 69/96 boilers at schemes 10, 11 and 15 *CM2K* *obligatory* must be installed for boiler to work for heating (this boilers starts/stops according to the heating demand, they can't work according hydraulic crossover temp.)
- at scheme 15 without CM2K boiler can work only according DHW demand.

Scheme 1. Configuration **DHW**

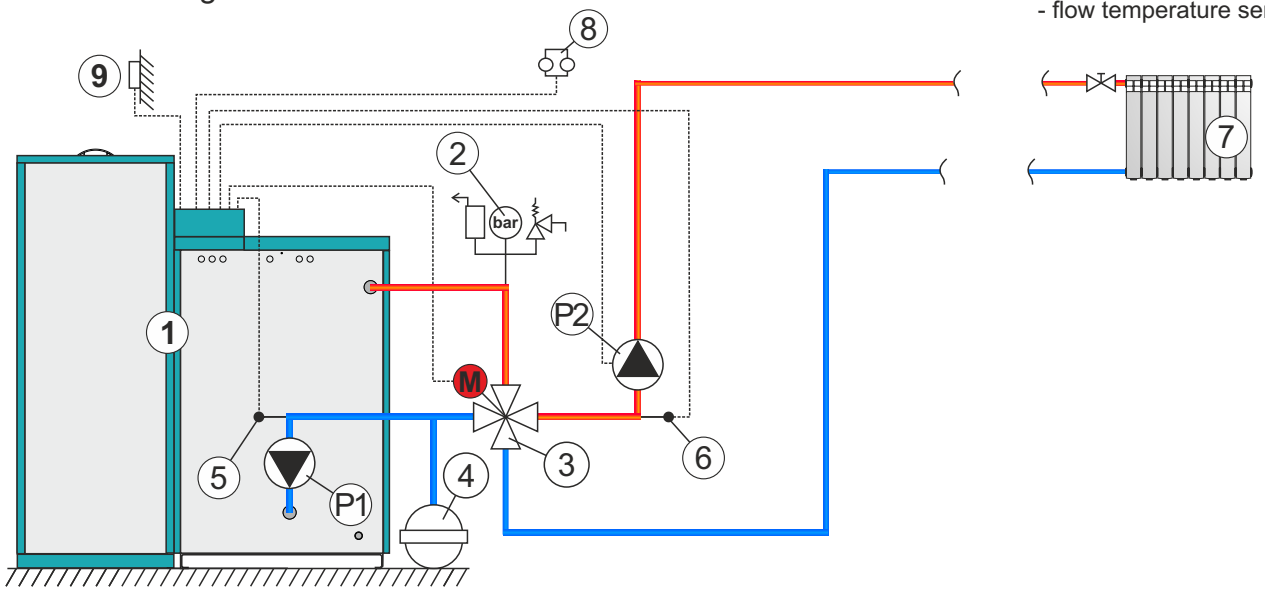
Required sensors: - return flow temp. sensor
- DHW sensor



1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - DHW tank
7 - DHW sensor
8 - Outdoor sensor

Scheme 2. Configuration **DHC**

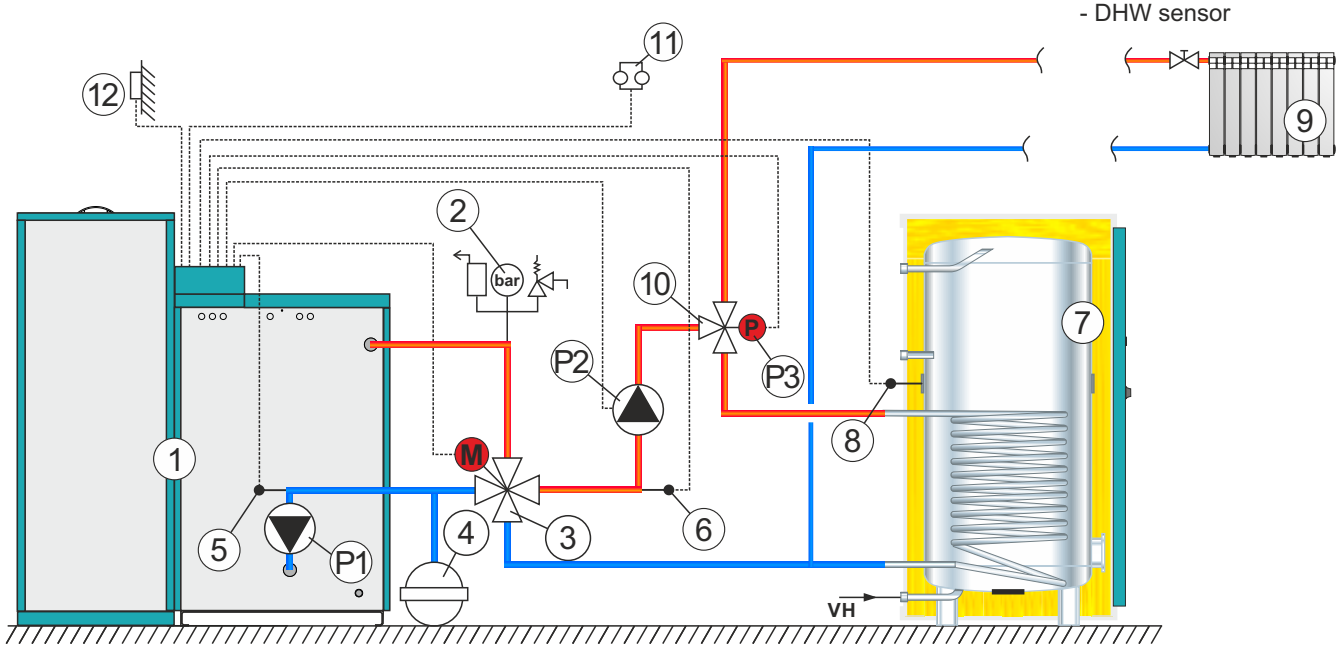
Required sensors: - return flow temp. sensor
- flow temperature sensor



1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Flow temperature sensor
7 - Heating circuit
8 - Room thermostat
9 - Outdoor sensor

Scheme 3. Configuration **DHC || DHW**

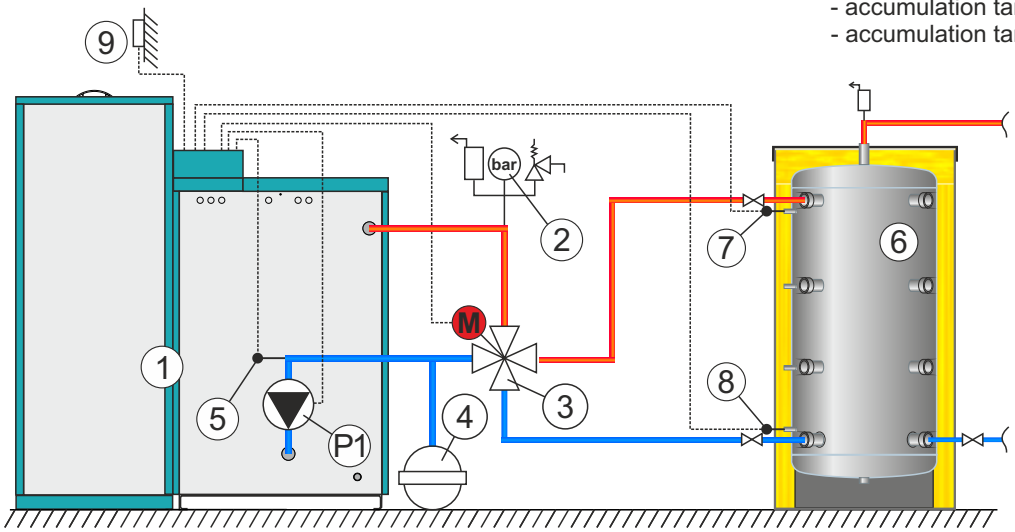
Required sensors: - return flow temp. sensor
- flow temperature sensor
- DHW sensor



1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Flow sensor
7 - DHW tank
8 - DHW tank sensor
9 - Heating circuit
10 - 3-way diverter valve
11 - Room thermostat
12 - Outdoor sensor

Scheme 4. Configuration **BUF**

Required sensors: - return flow temp. sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

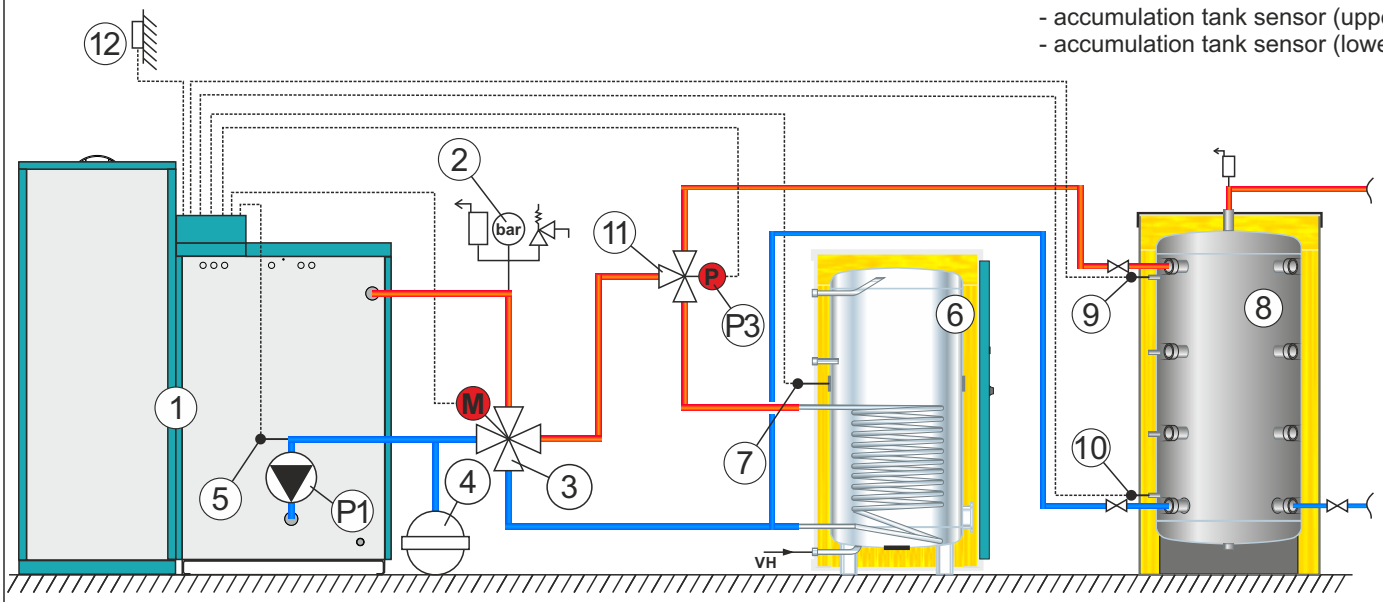


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Back flow sensor
6 - Accumulation tank CAS
7 - Accumulation tank sensor CAS 1 (upper)
8 - Accumulation tank sensor CAS (lower)
9 - Outdoor sensor

NOTES:
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits“.
- In this configuration is possible to connect external control (external start)

Scheme 5. Configuration **DHW || BUF**

Required sensors:
- return flow temp. sensor
- DHW tank sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

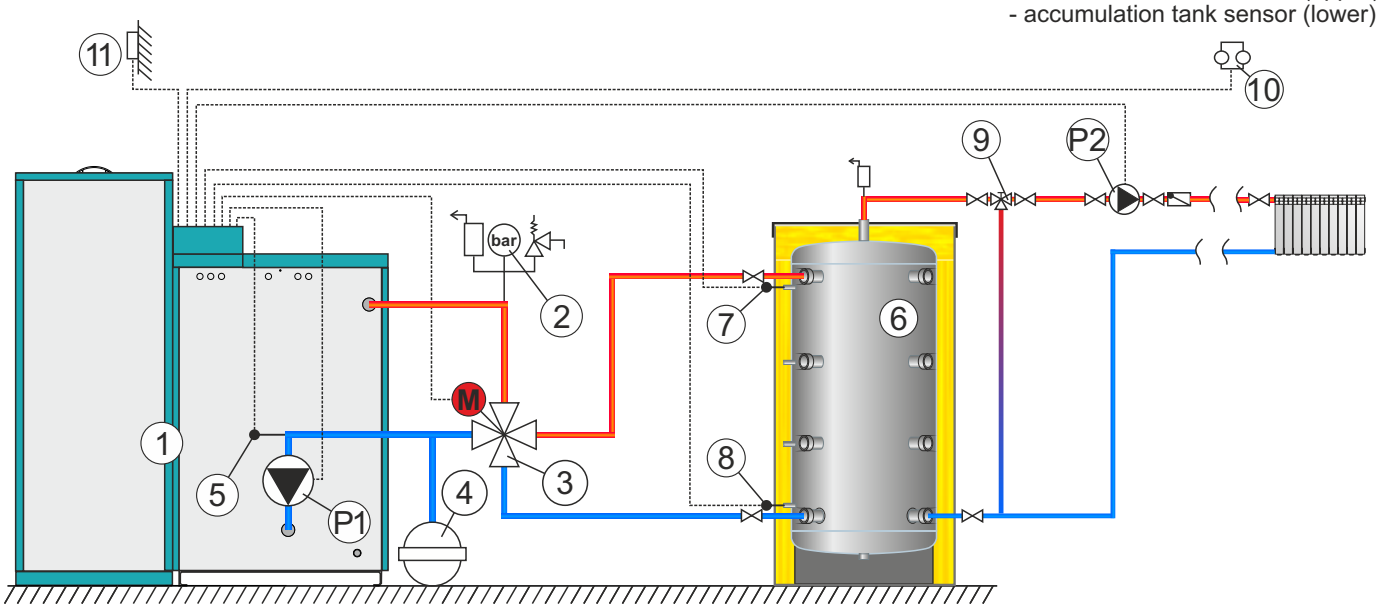


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - DHV tank
7 - DHW tank sensor
8 - Accumulation tank CAS
9 - Accumulation tank sensor CAS 1 (upper)
10 - Accumulation tank sensor CAS 2 (lower)
11 - 3-way diverter valve
12 - Outdoor sensor

NOTE:
In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits".

Scheme 6. Configuration **BUF -- IHC**

Required sensors:
- return flow temp. sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

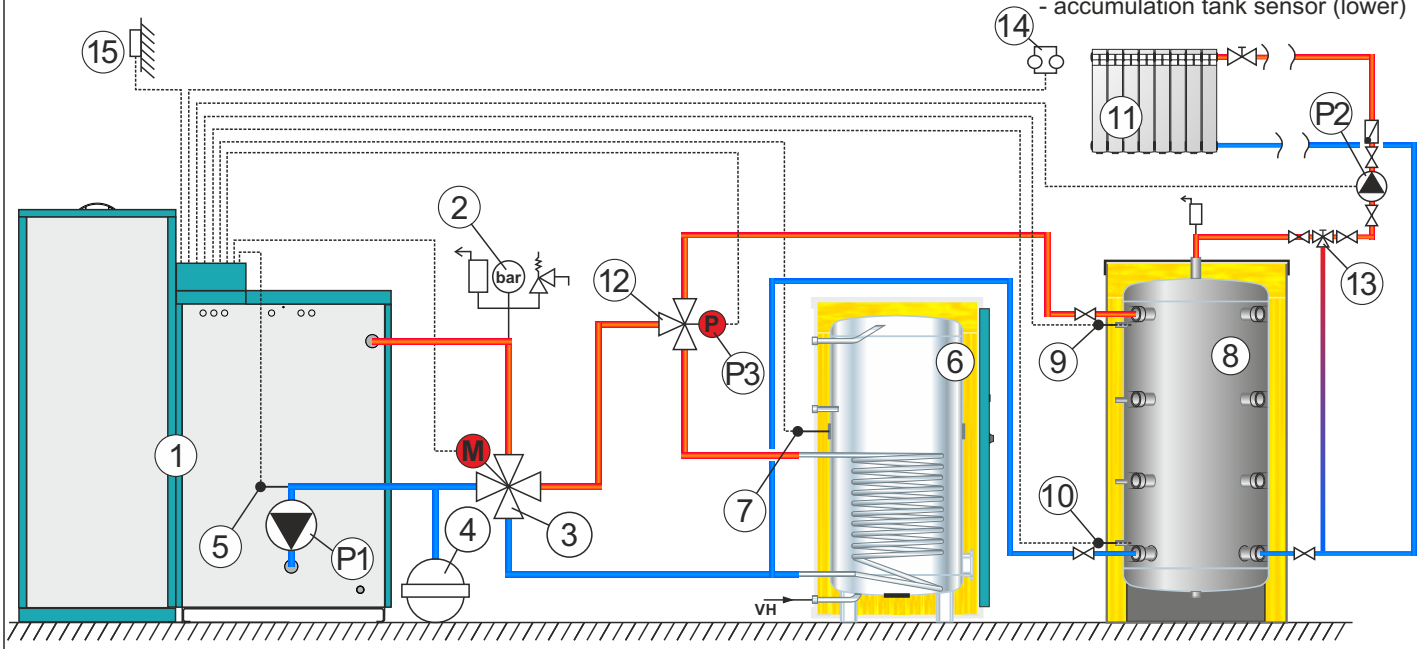


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Accumulation tank CAS
7 - Accumulation tank sensor CAS 1 (upper)
8 - Accumulation tank sensor CAS 2 (lower)
9 - 3-way manual mixing valve
10 - Room thermostat
11 - Outdoor sensor

NOTES:
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits".
- In this configuration is possible to connect external control (external start)

Scheme 7. Configuration **DHW || BUF -- IHC**

Required sensors: - return flow temp. sensor
- DHW tank sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

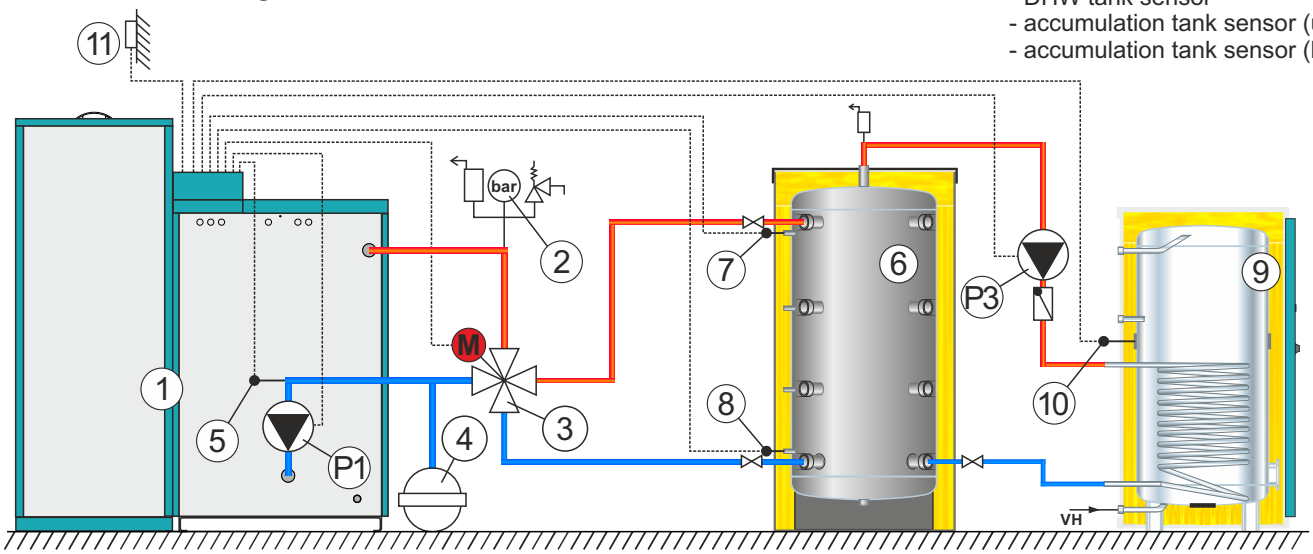


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - DHV tank
7 - DHV tank sensor
8 - Accumulation tank CAS
9 - Accumulation tank sensor CAS 1 (upper)
10 - Accumulation tank sensor CAS 2 (lower)
11 - Heating circuit
12 - 3-way diverter valve
13 - 3-way manual mixing valve
14 - Room thermostat
15 - Outdoor sensor

NOTE:
In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits".

Scheme 8. Configuration **BUF -- DHW**

Required sensors: - return flow temp. sensor
- DHW tank sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

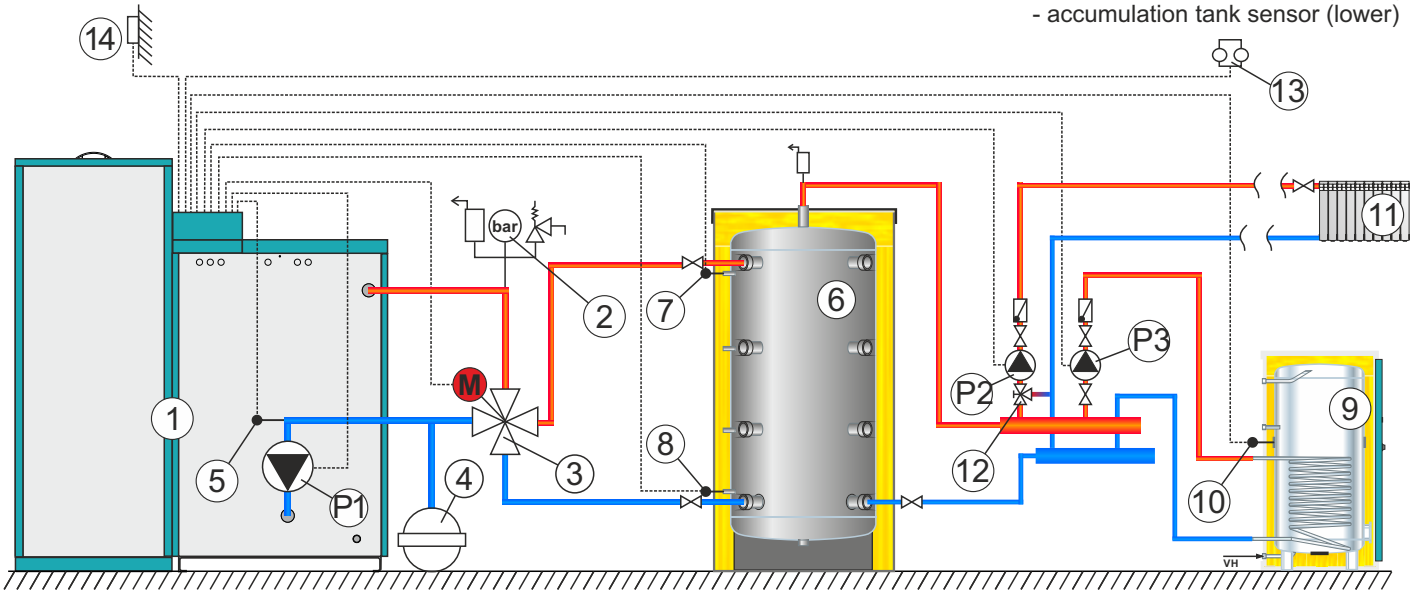


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Accumulation tank CAS
7 - Accumulation tank sensor CAS 1 (upper)
8 - Accumulation tank sensor CAS 2 (lower)
9 - DHV tank
10 - DHV tank sensor
11 - Outdoor sensor

NOTES:
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits".
- In this configuration is possible to connect external control (external start)

Scheme 9. Configuration **BUF -- IHC || DHW**

Required sensors: - return flow temp. sensor
- DHW tank sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

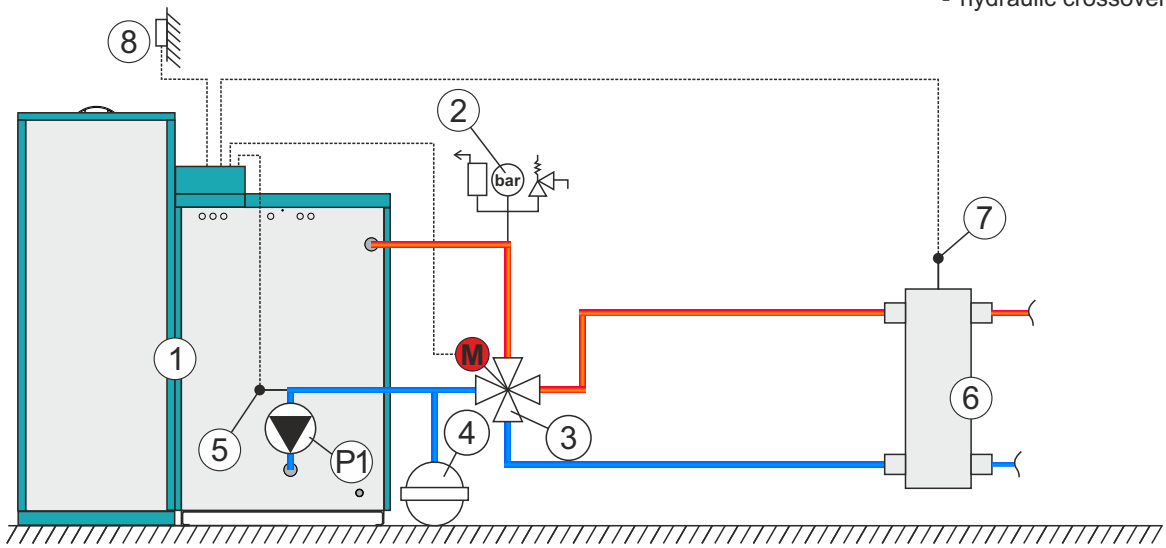


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Accumulation tank CAS
7 - Accumulation tank sensor CAS 1 (upper)
8 - Accumulation tank sensor CAS 2 (lower)
9 - DHV tank
10 - DHV tank sensor
11 - Heating circuit
12 - 3-way manual mixing valve
13 - Room thermostat
14 - Outdoor sensor

NOTES:
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits“.
- In this configuration is possible to connect external control (external start)

Scheme 10. Configuration **CRO**

Required sensors: - return flow temp. sensor
- hydraulic crossover sensor



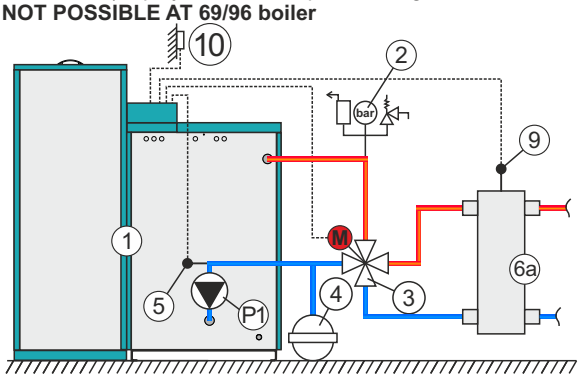
1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Hydraulic crossover
7 - Hydraulic crossover sensor
8 - Outdoor sensor

NOTES:
- **in this configuration PelTec-lambda 69/96 boiler works only with CM2K module which must be installed and configurated**
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits“.
- In this configuration is possible to connect external control (external start)

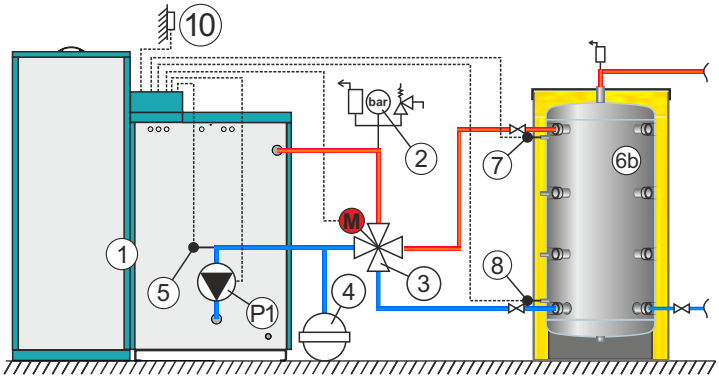
NOTE: USED ONLY IN CASCADES AND EXTERNAL CONTROL

Scheme 11. Configuration CRO / BUF

Version 1: (display shows 1 temperature, eg hidraulic crossover)
NOT POSSIBLE AT 69/96 boiler



Version 2: (Display shows 2 temperatures (eg. accumulation tank)
AT 69/96 BOILER ONLY OPTION



1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor

6a - Hydraulic crossover / 6b - Accumulation tank
7 - Accumulation tank sensor 1 (upper)
8 - Accumulation tank sensor 2 (lower)
9 - Hydraulic crossover sensor
10 - Outdoor sensor

Possible control:
- manually (ON/OFF)
- by scheduled starting times
- by external controller(START/STOP)**
- by cascade manager *
- by external controller (start/stop) + cascade manager**

Required sensors:
- return flow temp. sensor
- hydraulic crossover sensor (only in version 1)
- accumulation tank sensor (upper)(only in version 2)
- accumulation tank sensor (lower)

Imposible control:
- by room thermostat

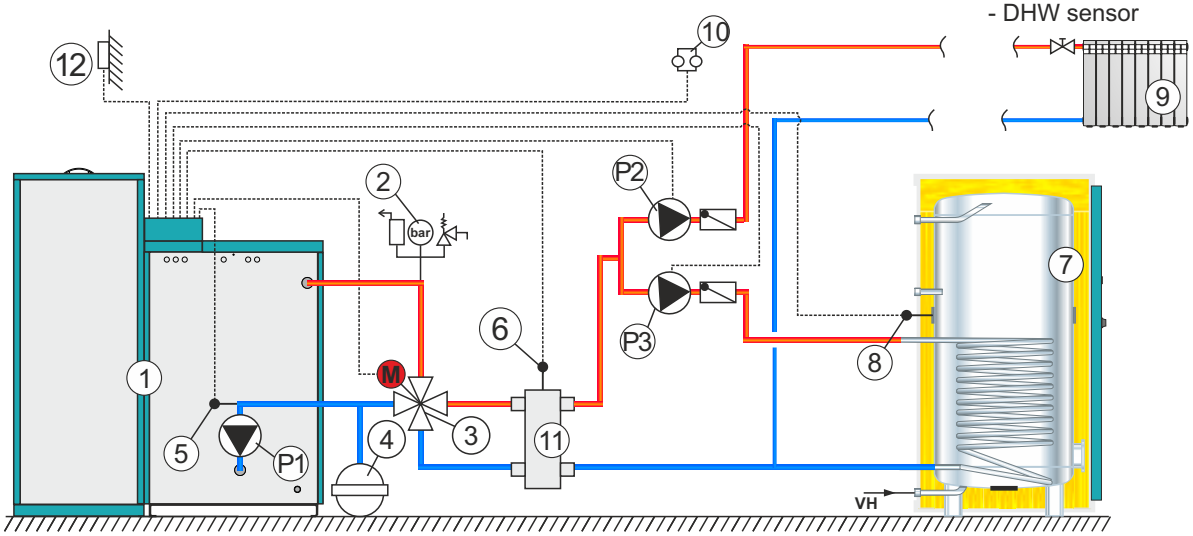
****Additional equipment**

* Note: Connecting the sensor 9 (version 1) and 7,8 (version 2) is not required because these temperatures are only informative, if sensors are not connected, regulation will show temperature " - °C". The boiler regulation will not report any error even if the sensors are defective.

NOTES:
- **in this configuration PelTec-lambda 69/96 boiler works only with CM2K module which must be installed and configurated**
- **in this configuration at PelTec-lambda 69/96 boiler shown is only Accumulation tank i.e. 2 sensors (at selection -/BUF)**
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits".
- In this configuration is possible to connect external control (external start)

Scheme 12. Configuration DHC || DHW(2)

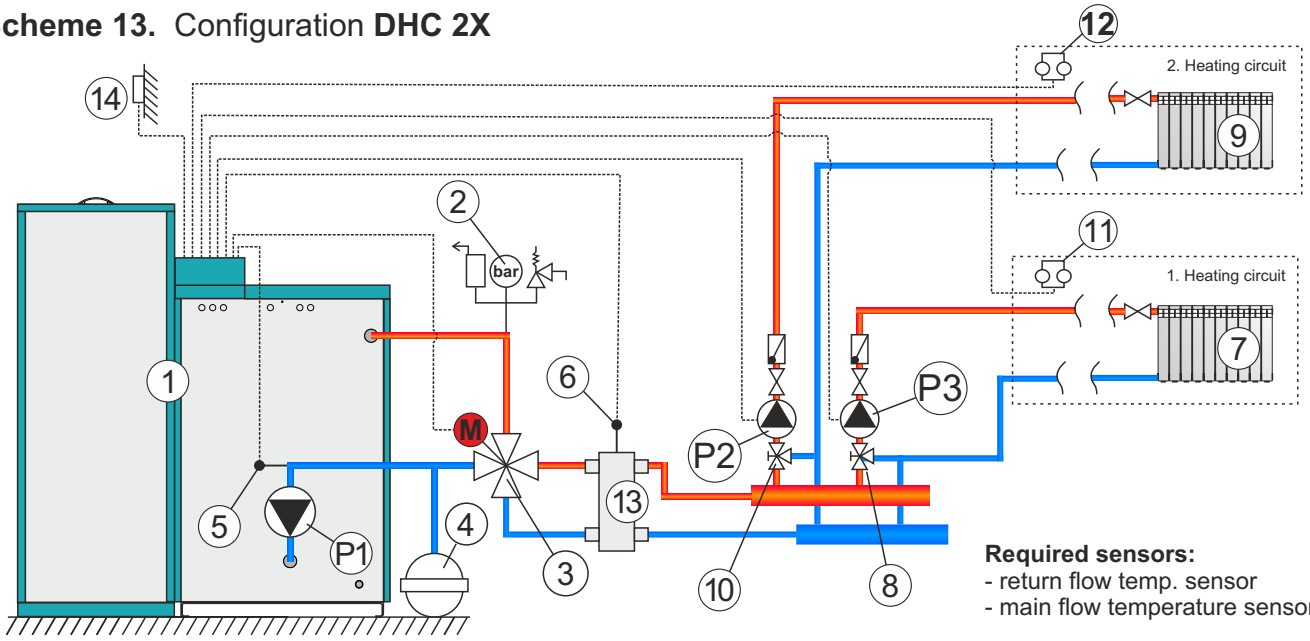
Required sensors:
- return flow temp. sensor
- main flow temperature sensor
- DHW sensor



1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vesse
5 - Return flow sensor
6 - Main flow temperature sensor

7 - DHW tank
8 - DHW tank sensor
9 - Heating circuit
10 - Room thermostat
11 - Hydraulic crossover
12 - Outdoor sensor

Scheme 13. Configuration **DHC 2X**

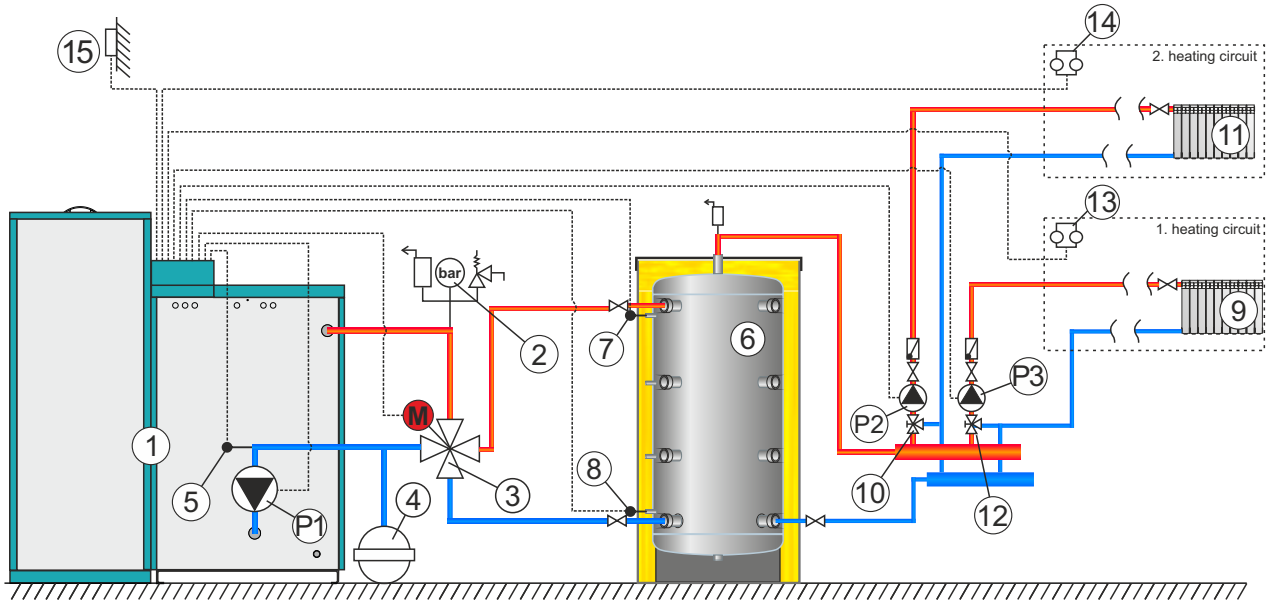


Required sensors:
- return flow temp. sensor
- main flow temperature sensor

1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Main flow temperature sensor
7 - Heating circuit 1
8 - 3-way manual mixing valve 1.circuit
9 - Heating circuit 2
10 - 3-way manual mixing valve 2.circuit
11- Room thermostat 1. circuit
12- Room thermostat 2. circuit
13 - Hydraulic crossover
14 - Outdoor sensor

Shema 14. Configuration **BUF--IHCx2**

Required sensors:
- return flow temp. sensor
- accumulation tank sensor (upper)
- accumulation tank sensor (lower)

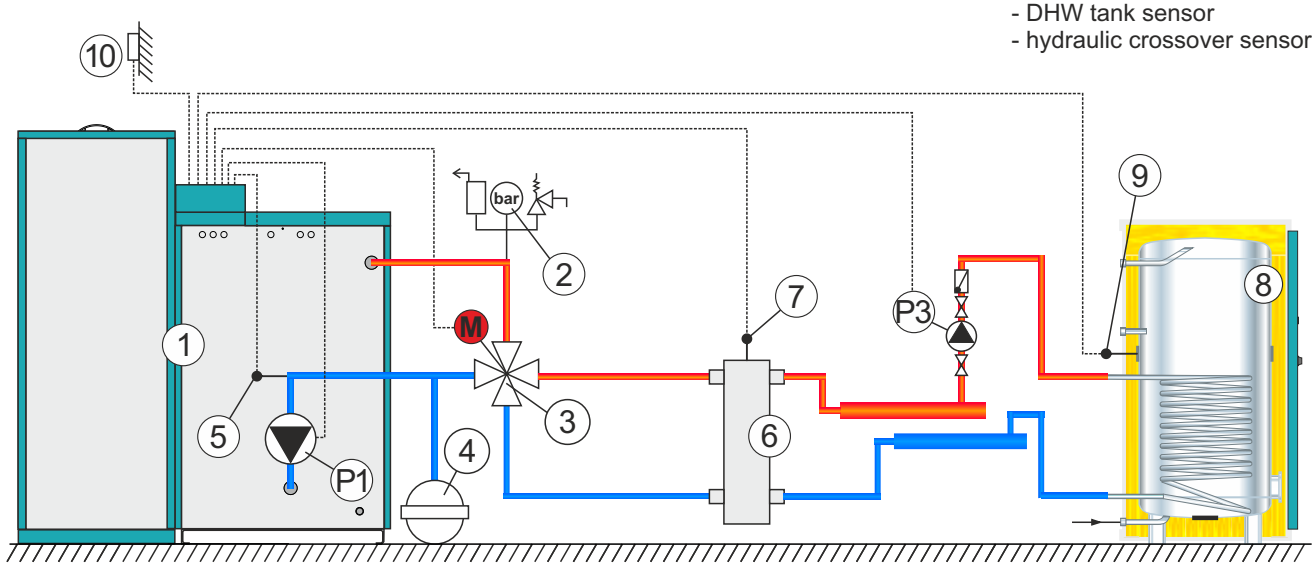


1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Accumulation tank CAS
7 - Accumulation tank sensor CAS 1 (upper)
8 - Accumulation tank sensor CAS 1 (lower)
9 - Heating circuit 1
10 - 3-way manual mixing valve 1.circuit
11- Heating circuit 2
12- 3-way manual mixing valve 2.circuit
13- Room thermostat 1. circuit
14- Room thermostat 2. circuit
15 - Outdoor sensor

NOTES:
- In this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits“.
- In this configuration is possible to connect external control (external start)

Scheme 15. Configuration **CRO -- DHW**

Required sensors: - return flow temp. sensor
- DHW tank sensor
- hydraulic crossover sensor



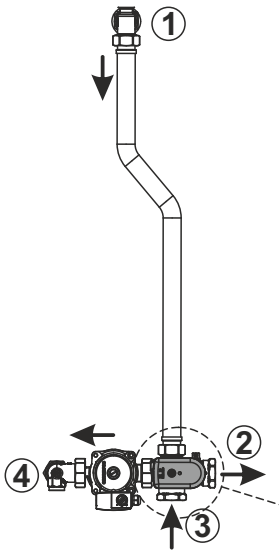
1 - Boiler PelTec / PelTec-lambda
2 - Air self-venting group 2,5 bar
3 - Motor 4-ways mixing valve
4 - Closed type expansion vessel
5 - Return flow sensor
6 - Hydraulic crossover
7 - Hydraulic crossover sensor
8 - DHW tank
9 - DHW tank sensor
10 - Outdoor sensor

NOTE:
- in this configuration boiler PelTec-lambda 69/96 can work only by DHW demand (except if CM2K is installed)
- in this configuration module CM2K must be installed and configurated to be able to heat heating system
- in this configuration is possible to upgrade up to 4 unit "CM2K module for regulation 2 heating circuits

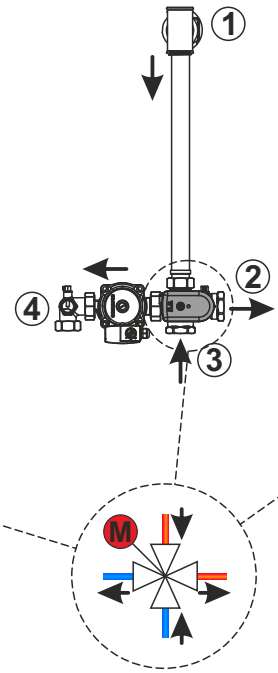
4-WAY MIXING VALVE CONNECTIONS:

LEGEND:
1 - boiler main flow
2 - main flow to the installation
3 - return flow from the installation
4 - boiler return flow

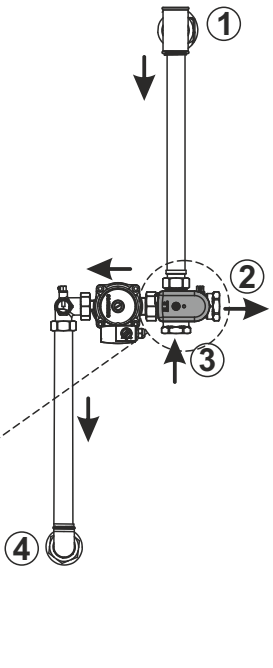
PelTec 12
PelTec-lambda 12



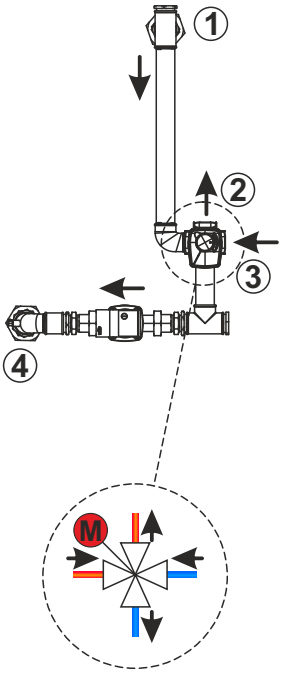
PelTec 18-36
PelTec lambda 18-36



PelTec 48
PelTec-lambda 48



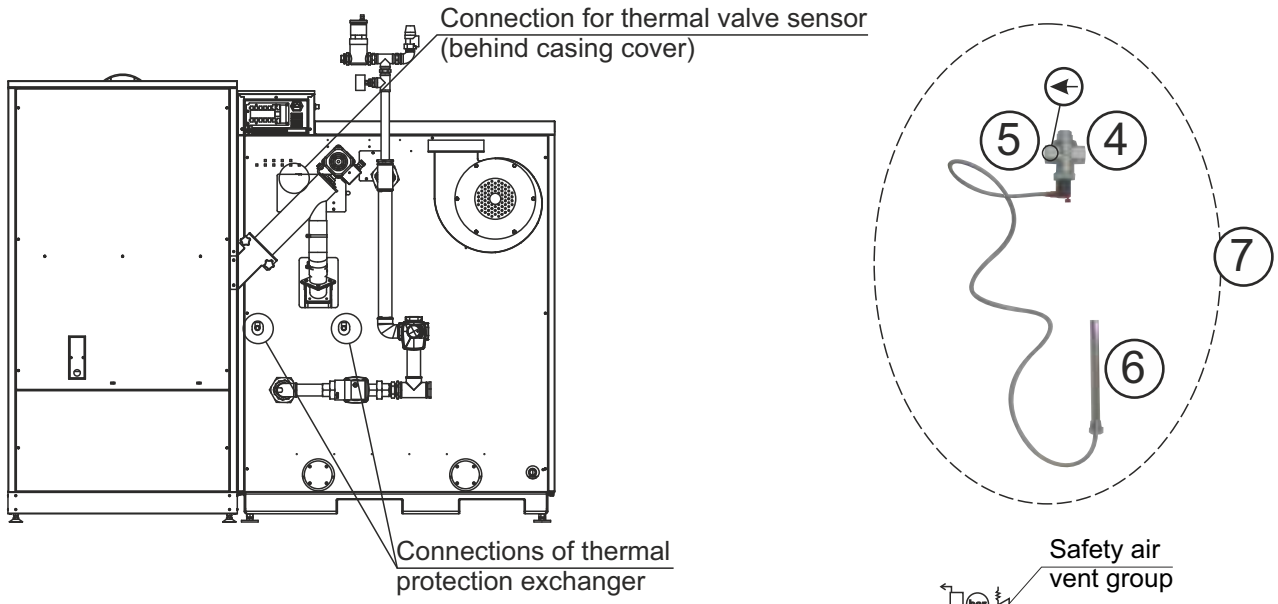
PelTec-lambda 69/96



4.2. THERMAL SAFETY PROTECTION INSTALLATION (only 69 and 96 kW)

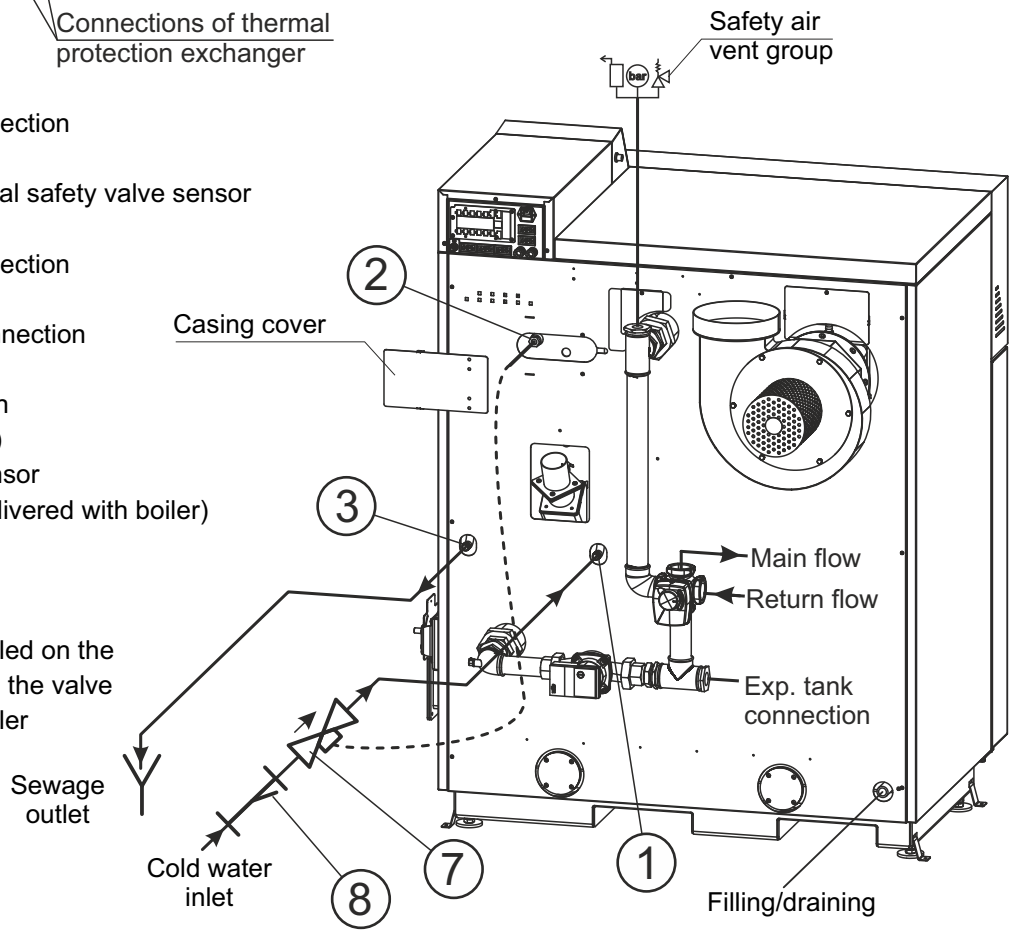
Boilers PelTec Lambda 69 and 96 obligatory must have thermal protection installed. They have factory installed thermal protection exchanger which must be connected to the water supply throught the thermal protection valve (delivered with the boiler, must be installed by installer). Connections of the thermal protection exchanger are on the boiler back side. Example of connection is shown in picture below.

Thermal protection installation (only PelTec Lambda 69/96)



① - Thermal exchanger connection (to thermal safety valve)
② - Connection for the thermal safety valve sensor (behind casing cover)
③ - Thermal exchanger connection (to the sewerage)
④ - Thermal safety valve connection (cold water inlet HW)
⑤ - Thermal valve connection (to the termal exchanger)
⑥ - Thermal safety valve-sensor
⑦ - Thermal safety valve (delivered with boiler) (Caleffi 543, 98°C)
⑧ - Dirt filter (recommended)

Thermal valve must be installed on the cold water inlet and arrow on the valve must be pointing towards boiler



NOTE: thermal protection exchanger is build inside boiler body

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 / PelTec-lambda .

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

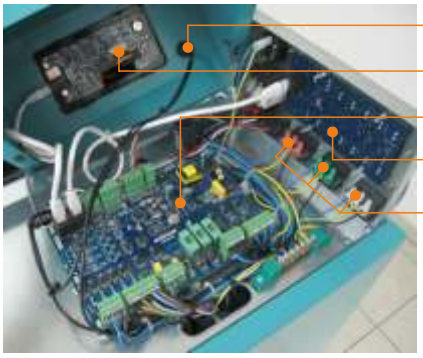
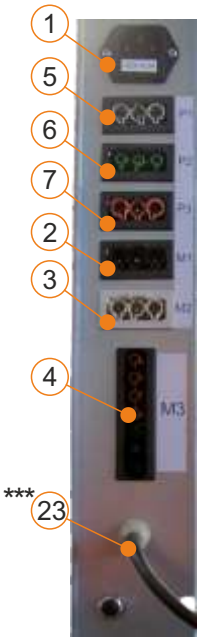
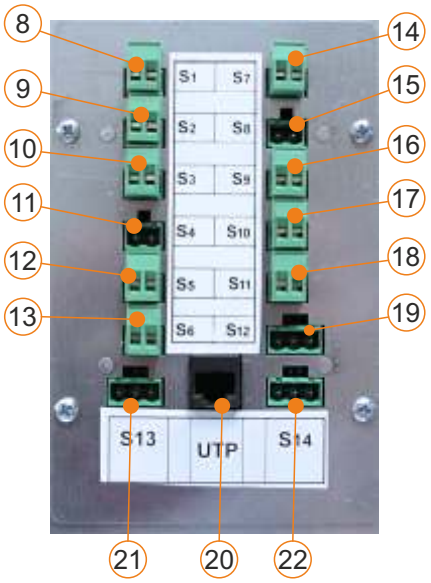


Figure 8. Connectors for power supply, el. components and sensors

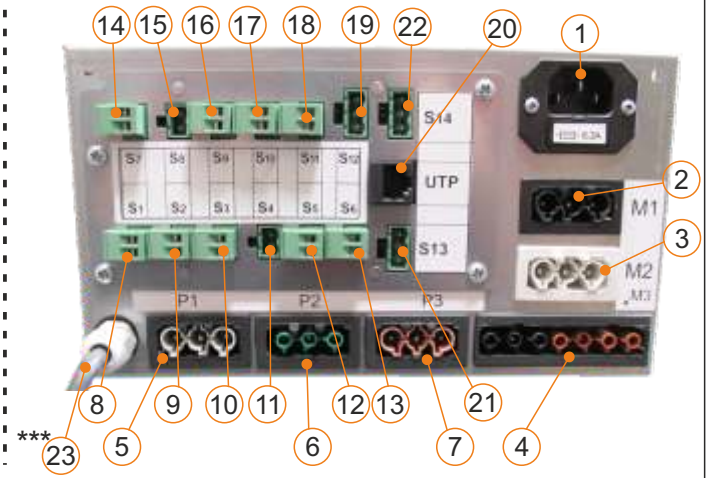
1. POWER SUPPLY
2. M1 - Pellet feeder
3. M2 - Actuator for 4-way mixing valve
4. M3 - Fan
5. P1 - Heating pump
6. P2 - Domestic water pump
7. P3 - Tank pump
- *8. S1* - Sanitary water sensor / Room thermostat 2.circuit
9. S2 - Accumulation tank 1 sensor (up) / Hydraulic crossover sensor
10. S3 - Accumulation tank 2 sensor (down)
11. S4 - Flue gas sensor
12. S5 - Outdoor temp. sensor
- **13. S6 - Flow sensor / External control **
14. S7 - Return sensor
15. S8 - PVC tube bimetal sensor
- **16. S9 - Room thermostat / External control**
17. S10 - Alarm 1
18. S11 - Alarm 2 / Reserve
19. S12 - Pellet level in the tank sensor
20. - UTP connector
21. - Reserve
22. - Reserve
- ***23. - Lambda probe cable



PelTec/PelTec-lambda 12/18



PelTec/PelTec-lambda 24-96



* If heating system contains DHW, on the connector S1 is connected hot water sensor, and if the heating system contains 2 heating circuit, on the connector S1 is connected the room thermostat.

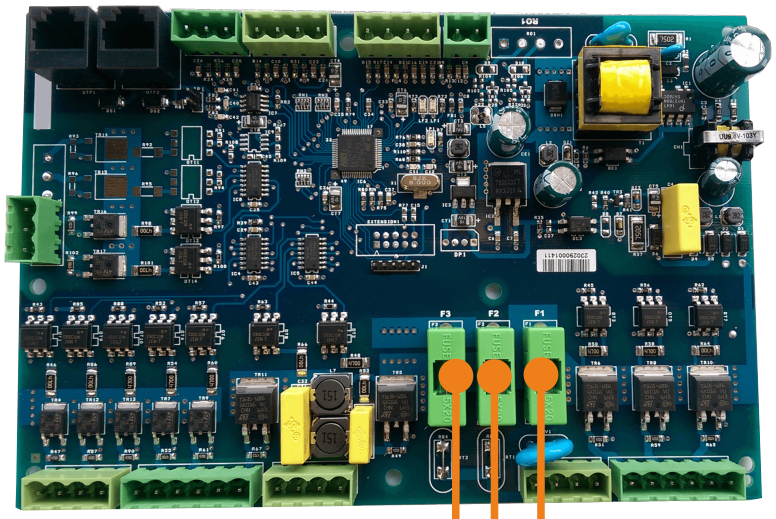
External control can be connected only in configurations: **4: BUF, **6**: BUF--IHC, **8**: BUF--DHW, **9**: BUF-IHC||DHW, **10**: CRO, **14**: BUF--IHCX2 into the connector **S6** and configuration **11**:CRO/BUF into connector **S9**.

***Only PelTec-lambda

Note: It is obligatory mount the sensor in the socket for sensors using thermal paste

5.1. FUSES

Main Board
PelTec / PelTec-lambda



Mark: F3
3,15 A, F or M

Mark: F2
1,6 A, F

Mark: F1
3,15 A, F or M

***Lambda board**
(only PelTec-lambda)

Mark: F1
3,15 A, F or M

MAIN BOARD

MARK	FUSE	DEVICES
F1	3,15 A, F or M	- all pumps - regulation (power supply)
F2	1,6 A, F	- all other devices who are not on the F1 and F3 (motor mechanism for the grating self-cleaning, pellet conveyor motor, flu gas tube cleaning motor...)
F3	3,15 A, F or M	- heater - fan
F4	6,3 A, F or M	- main fuse (on the regulation casing)

***LAMBDA BOARD (only PelTec-lambda)**

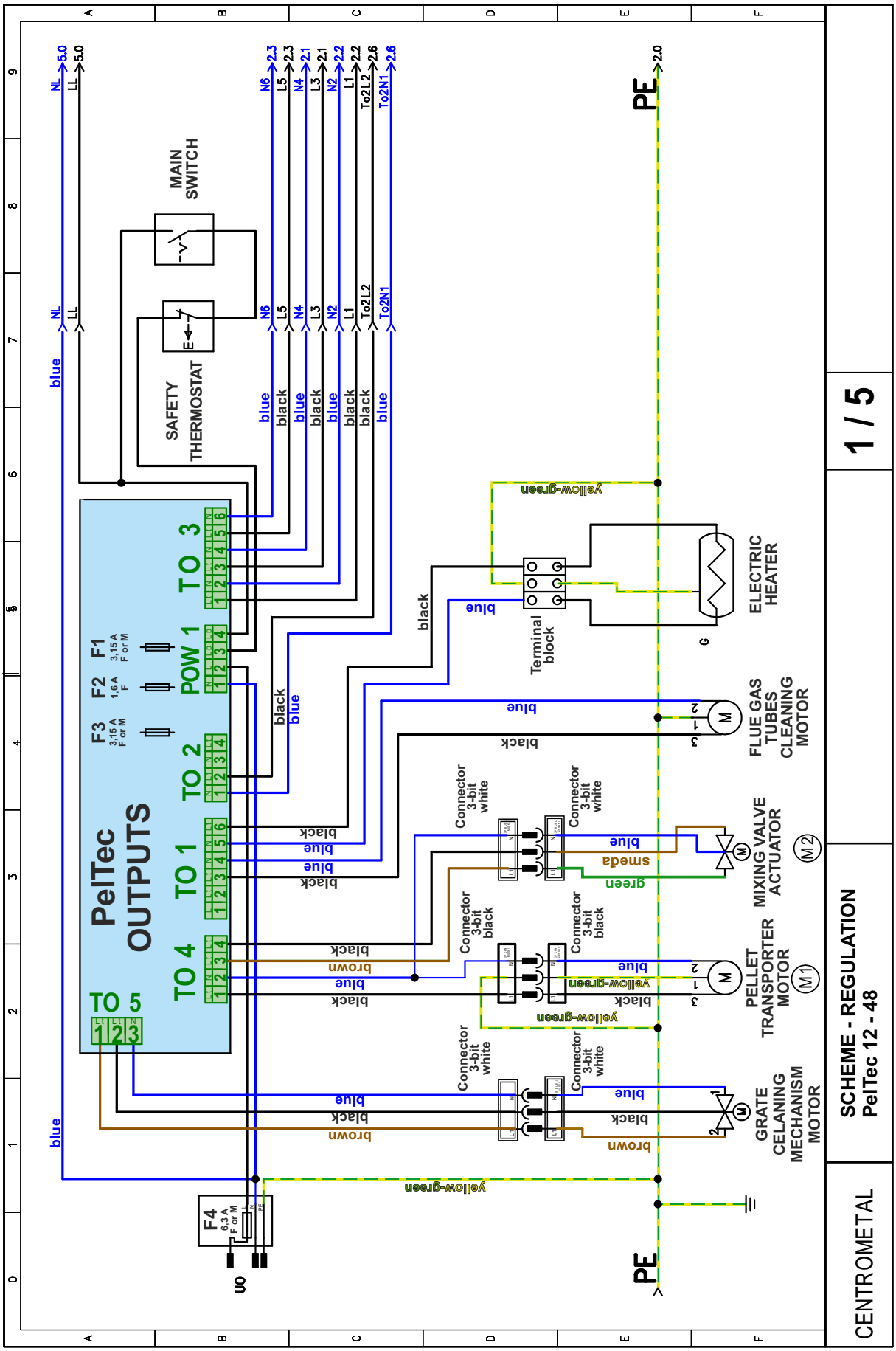
MARK	FUSE	DEVICES
F1	3,15 A, F or M	- lambda probe power supply

Note:
Be sure to use proper acting fuses F or M!

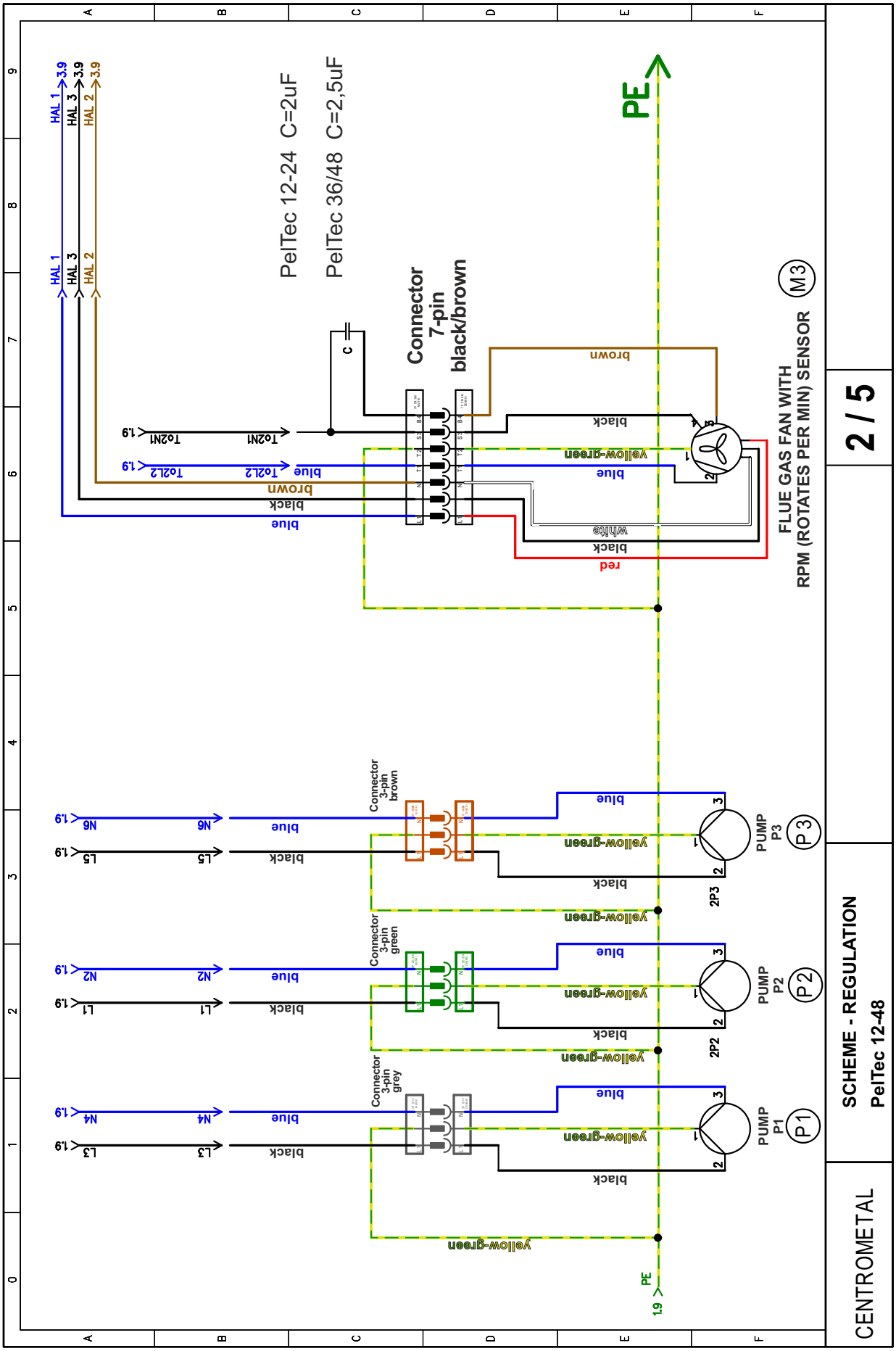
IMPORTANT:

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

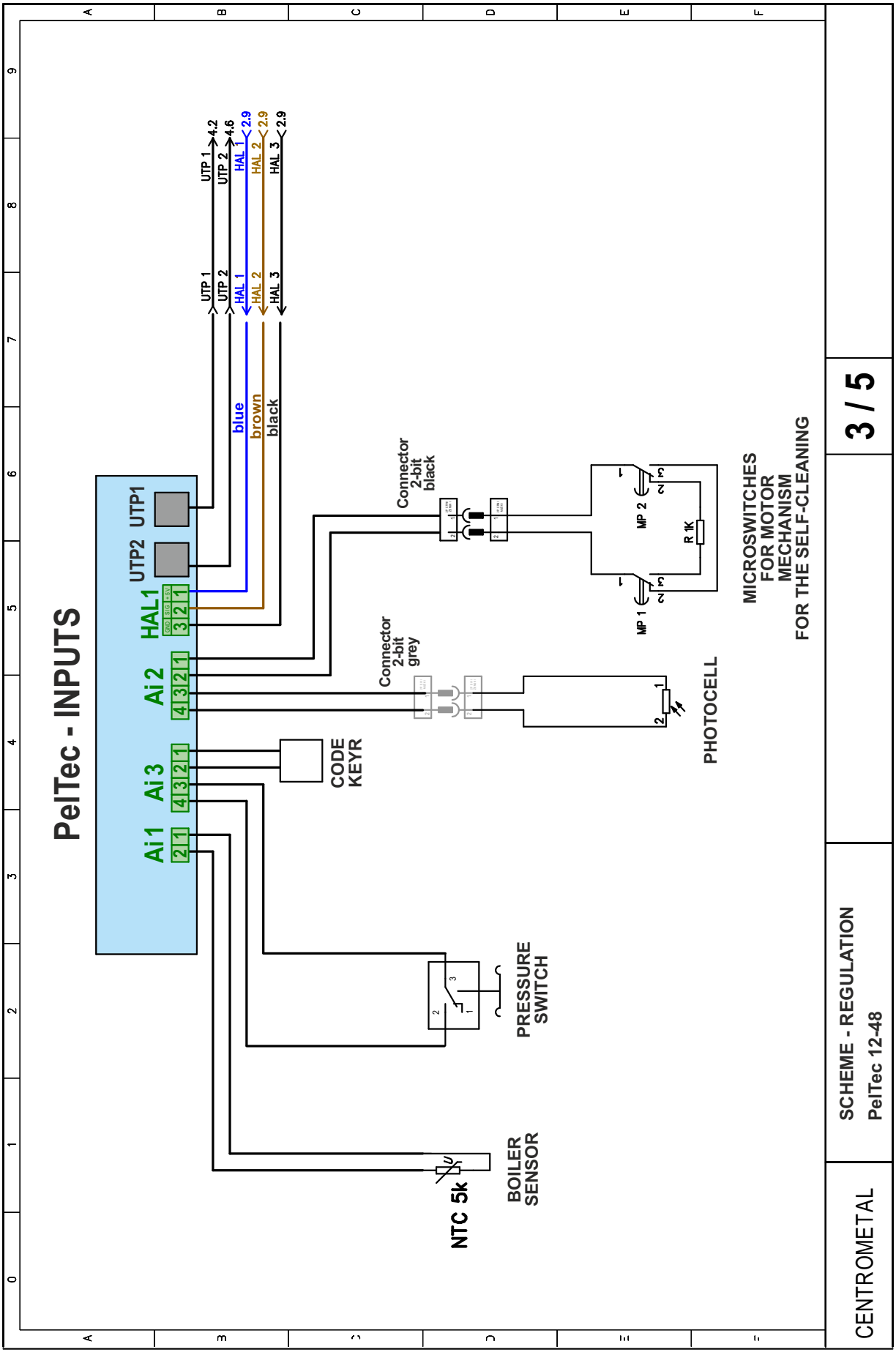
5.2.a ELECTRICAL SCHEME OUTPUTS 1 (PelTec 12-48)



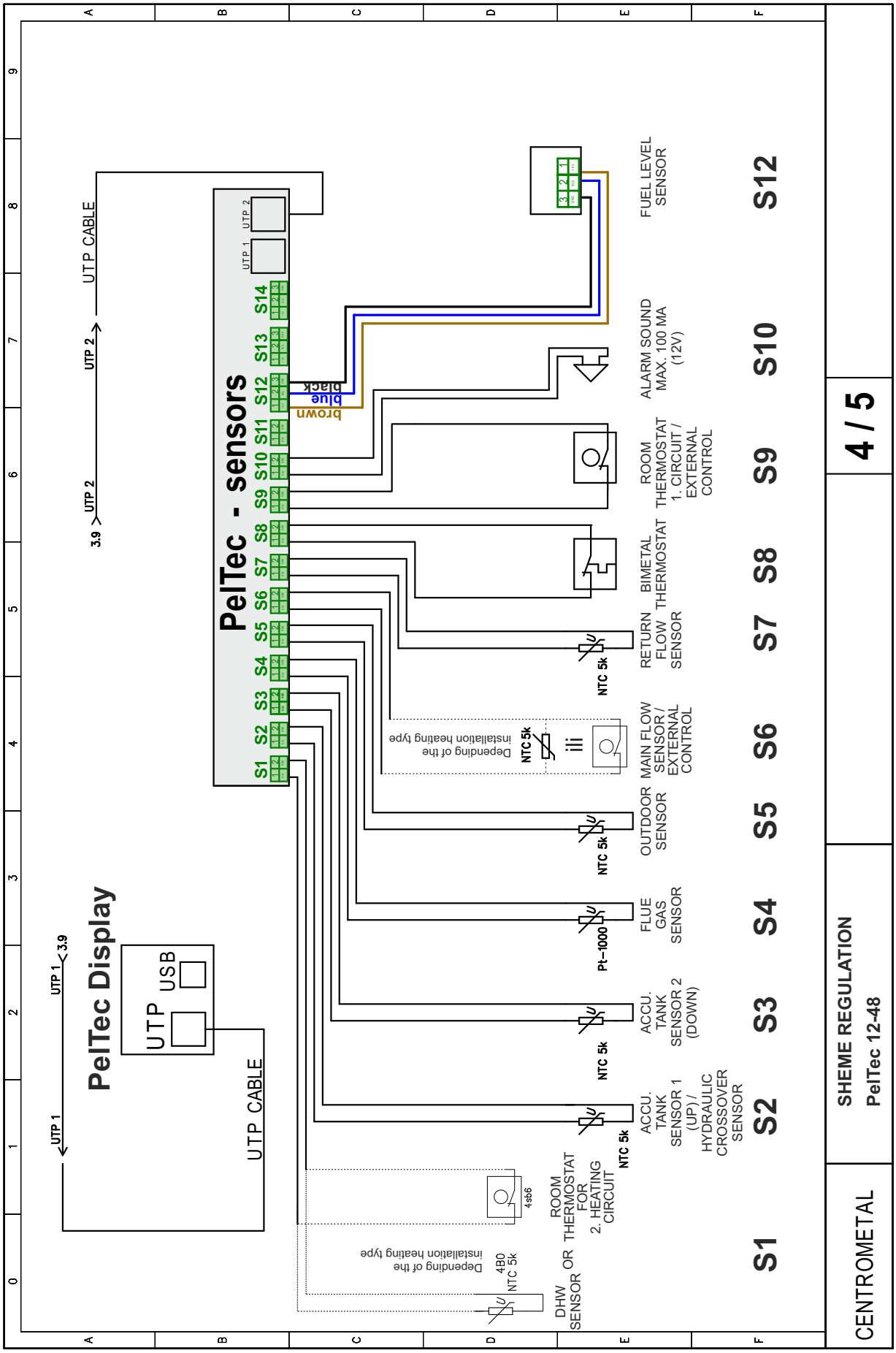
5.3.a ELECTRICAL SCHEME OUTPUTS 2 (PelTec 12-48)



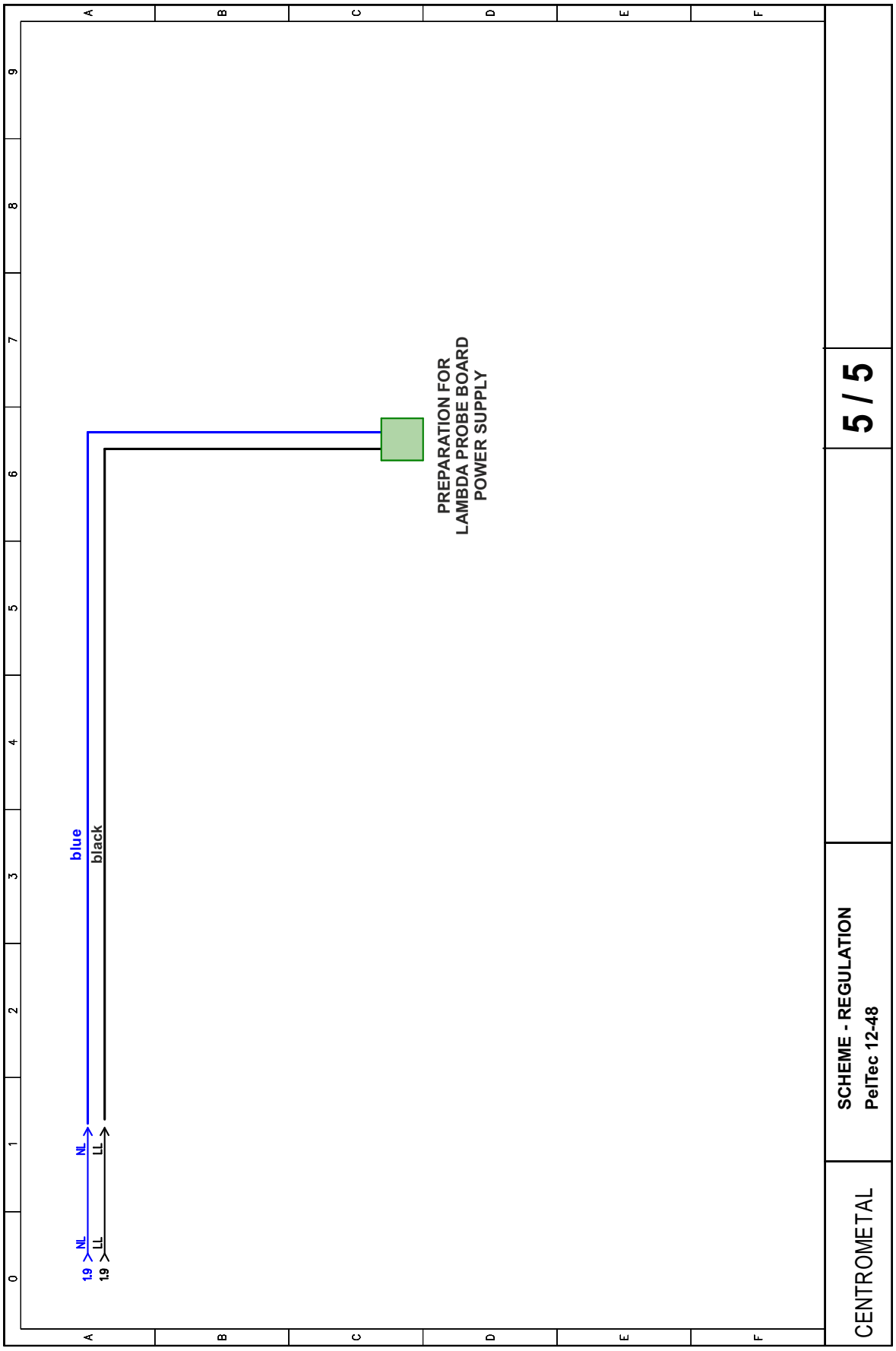
5.4.a ELECTRICAL SCHEME INPUTS (PelTec 12-48)



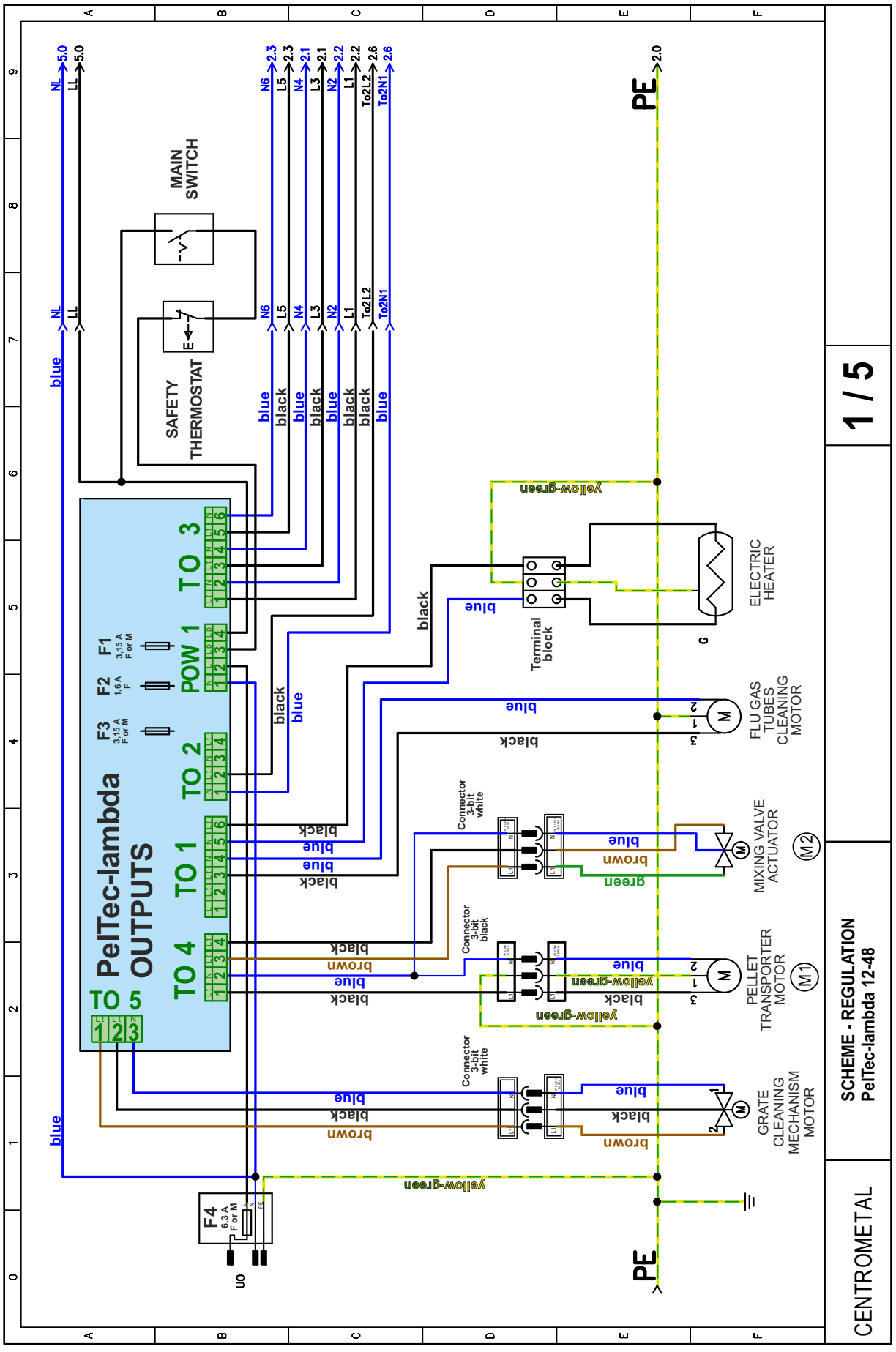
5.5.a ELECTRICAL SCHEME SENSORS (PelTec 12-48)



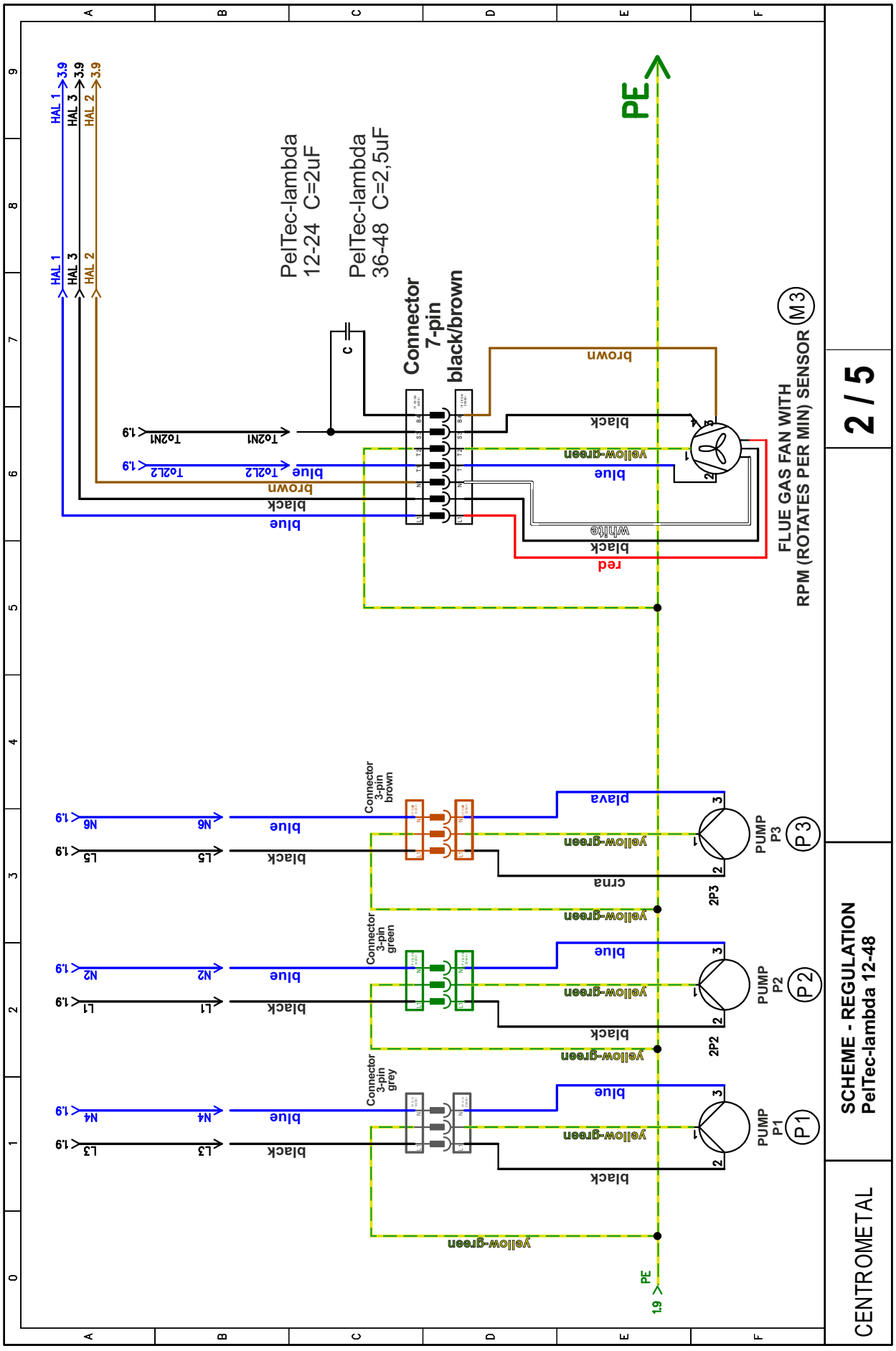
5.6.a ELECTRICAL SHEME preparation for Lambda p. (PelTec 12-48)



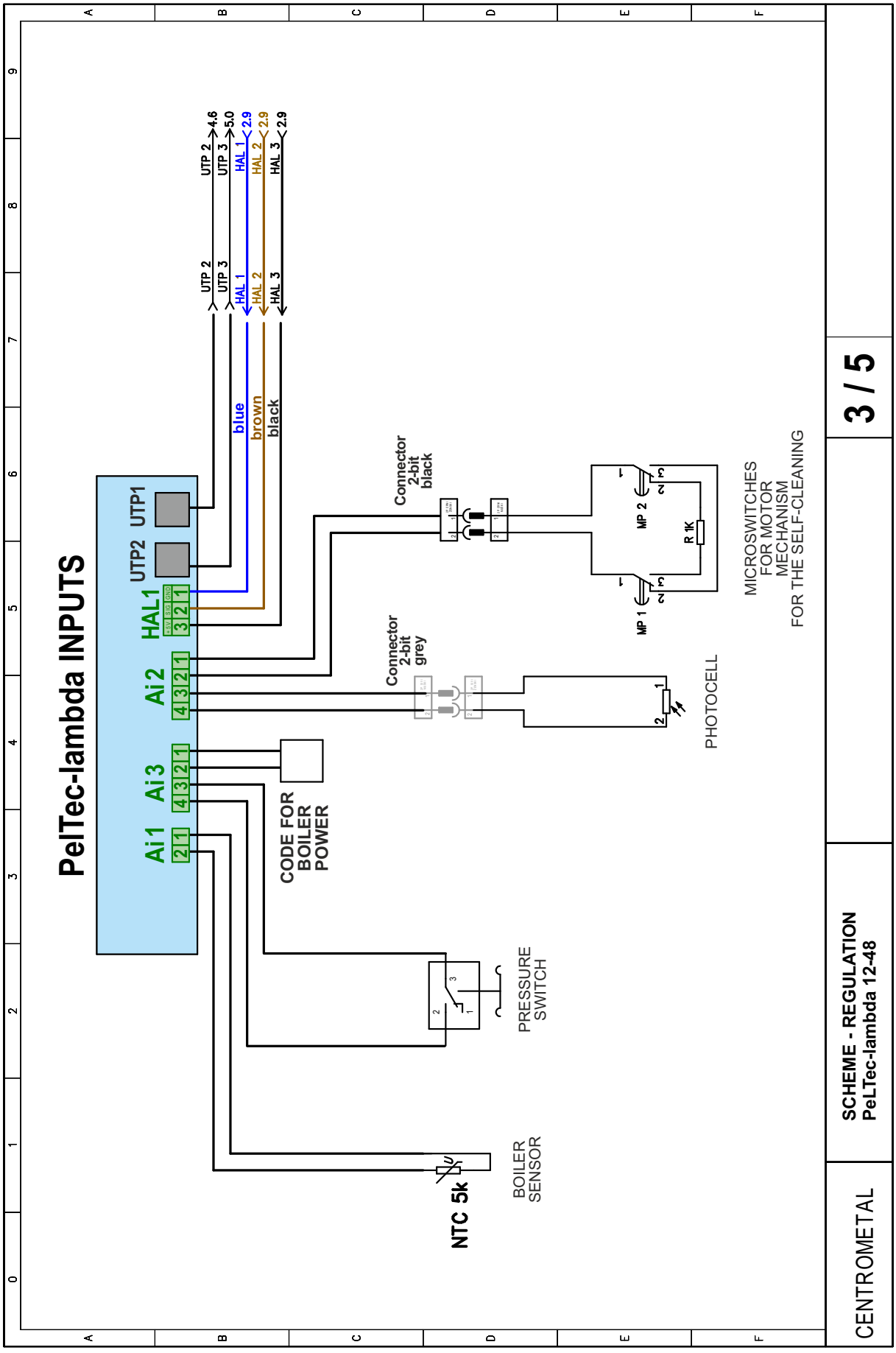
5.2.b ELECTRICAL SCHEME OUTPUTS 1 (PelTec-lambda 12-48)



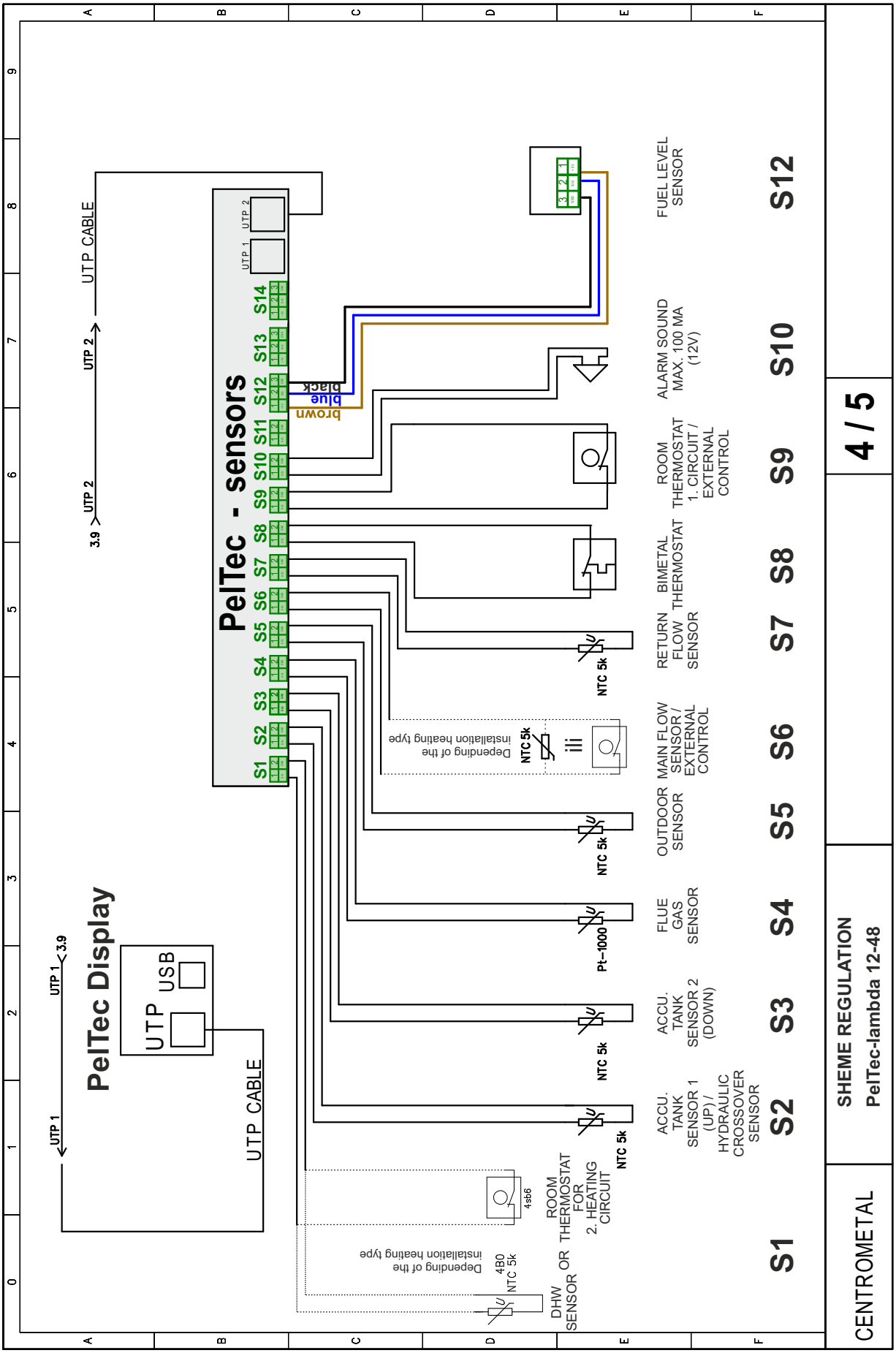
5.3.b ELECTRICAL SCHEME OUTPUTS 2 (PelTec-lambda 12-48)



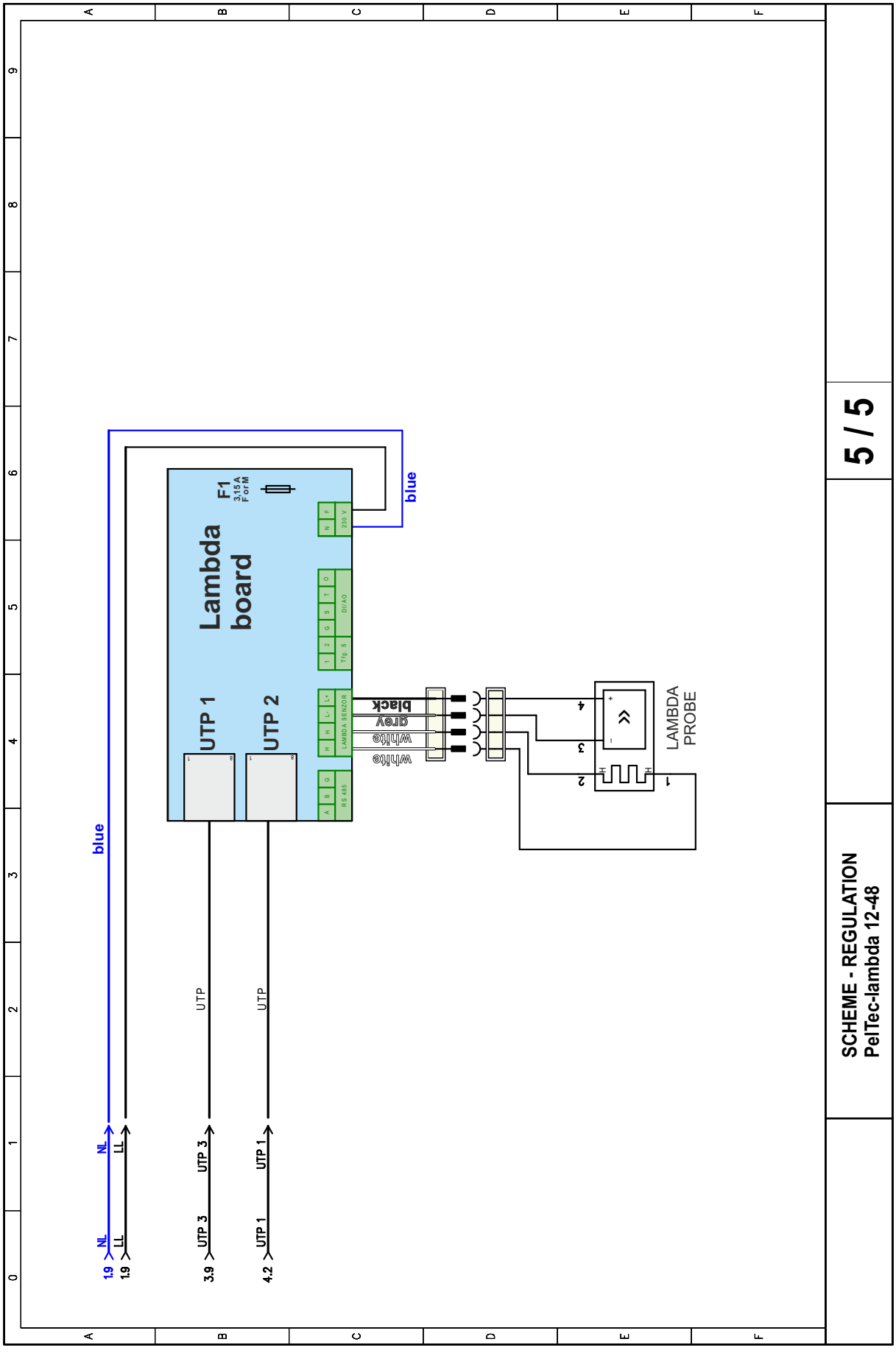
5.4.b ELECTRICAL SCHEME INPUTS (PelTec-lambda 12-48)



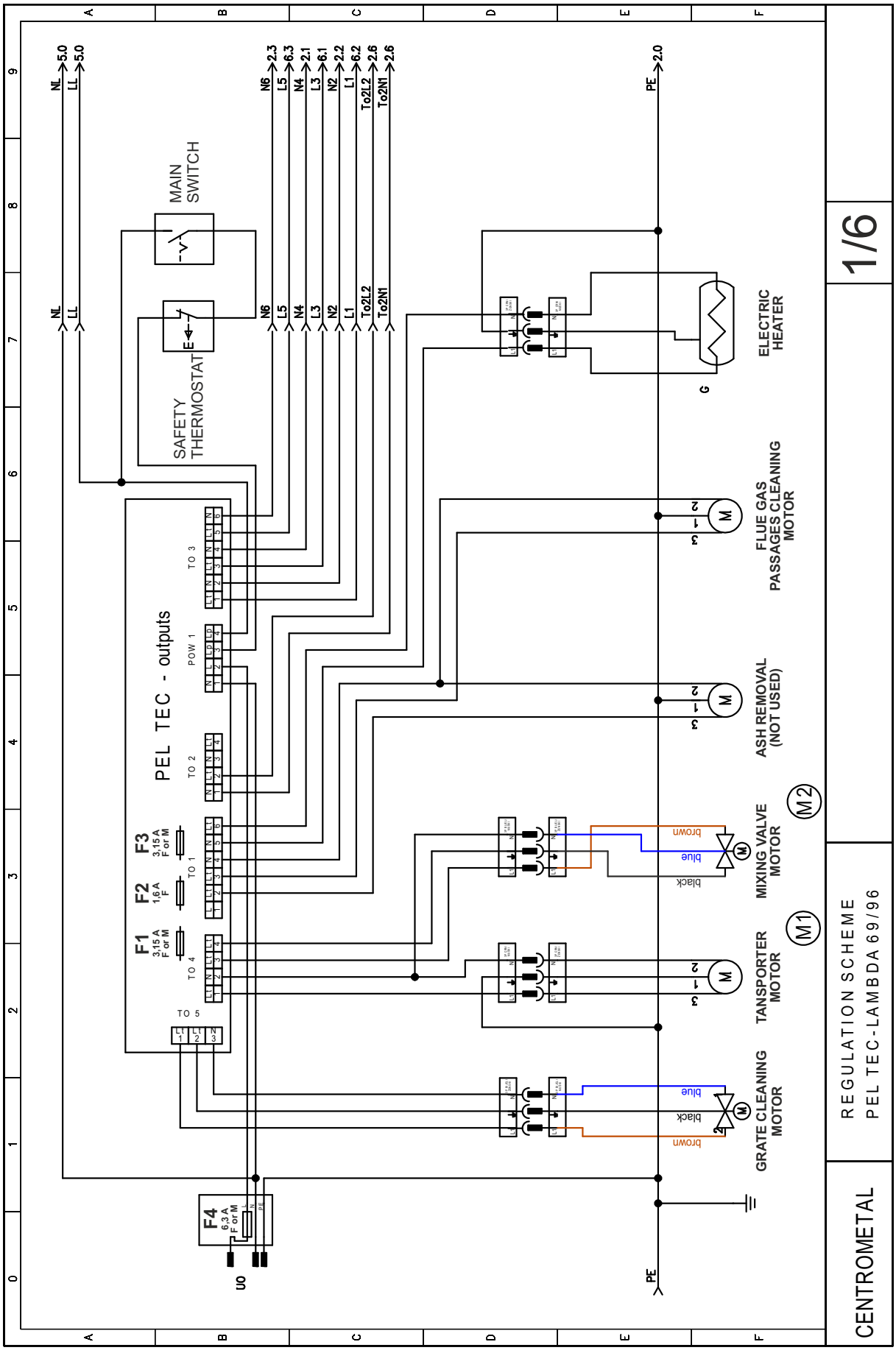
5.5.b ELECTRICAL SCHEME SENSORS (PelTec-lambda 12-48)



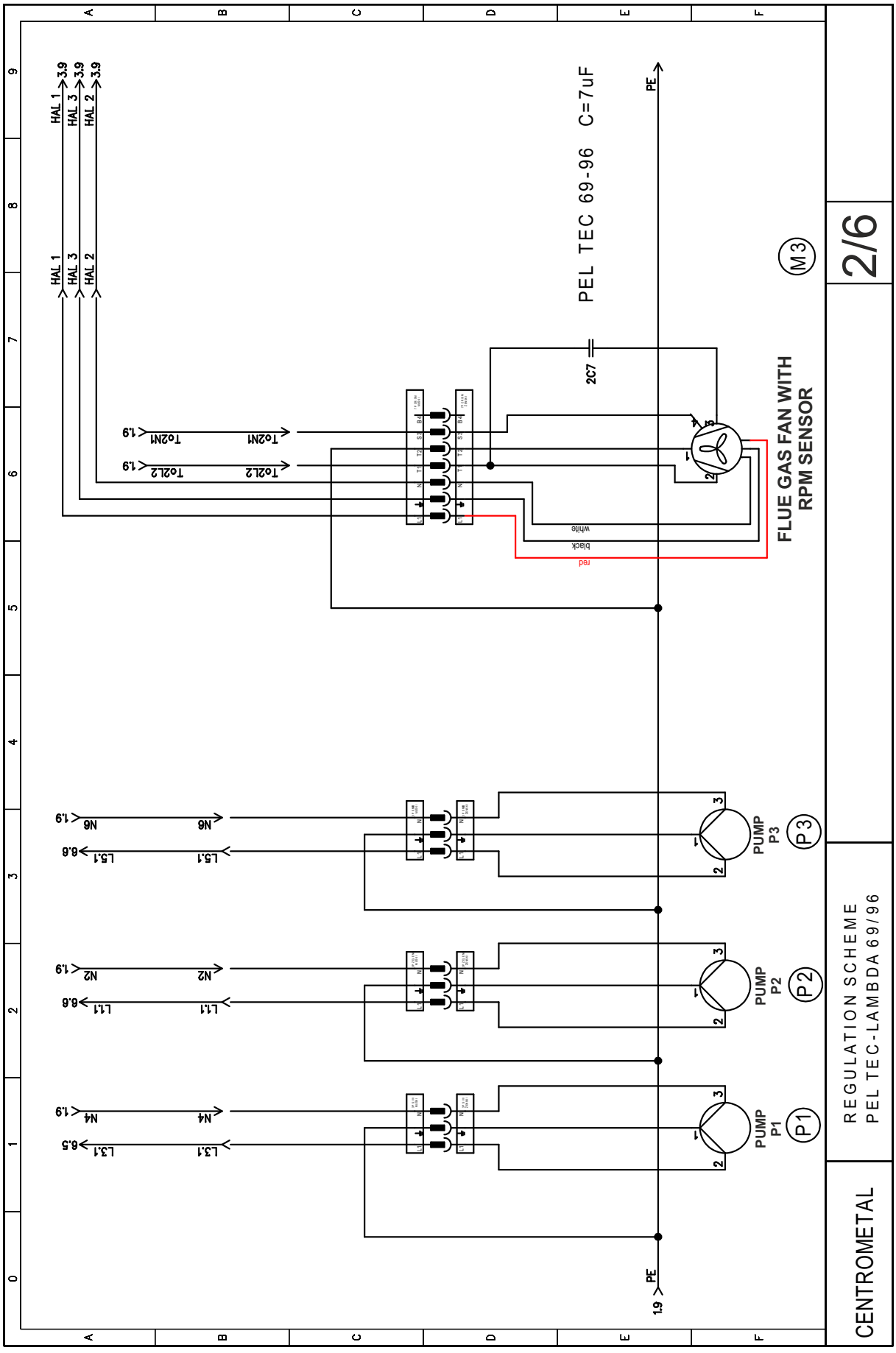
5.6.b ELECTRICAL SHEME LAMBDA PROBE (PelTec-lambda 12-48)



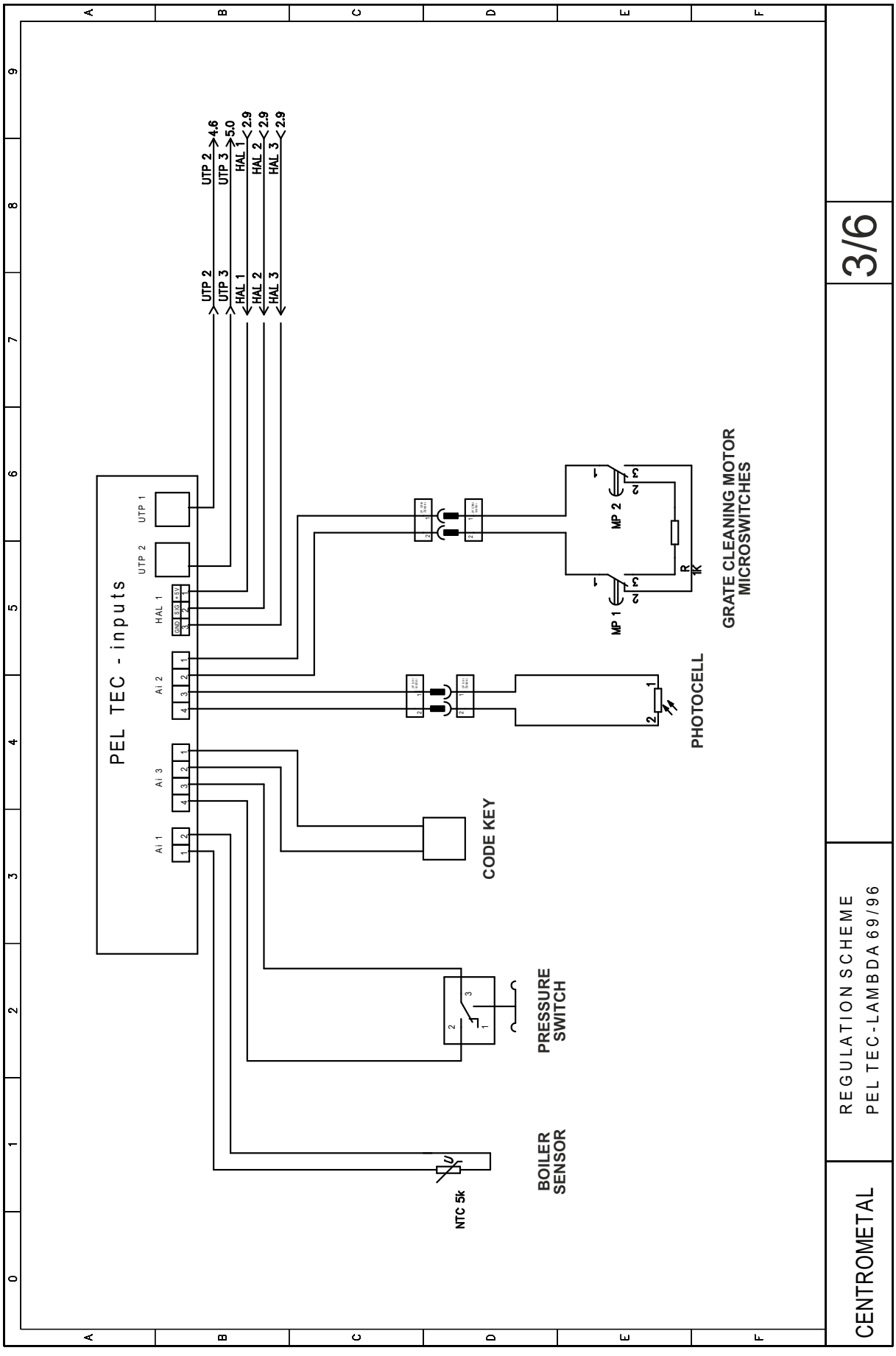
5.2.c ELECTRICAL SHEME OUTPUTS 1 (PelTec-lambda 69/96)



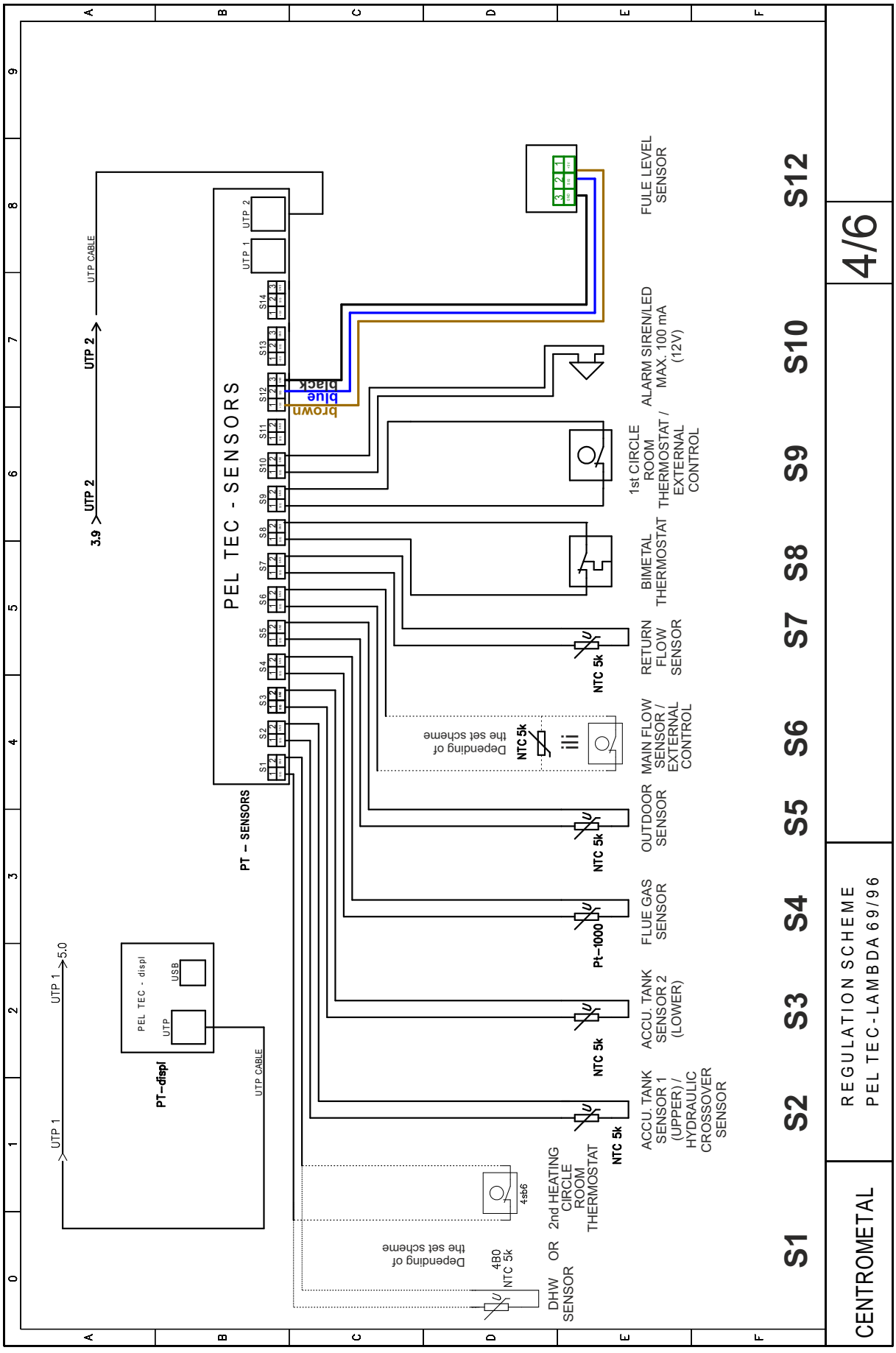
5.3.c ELECTRICAL SCHEME OUTPUTS 2 (PelTec-lambda 69/96)



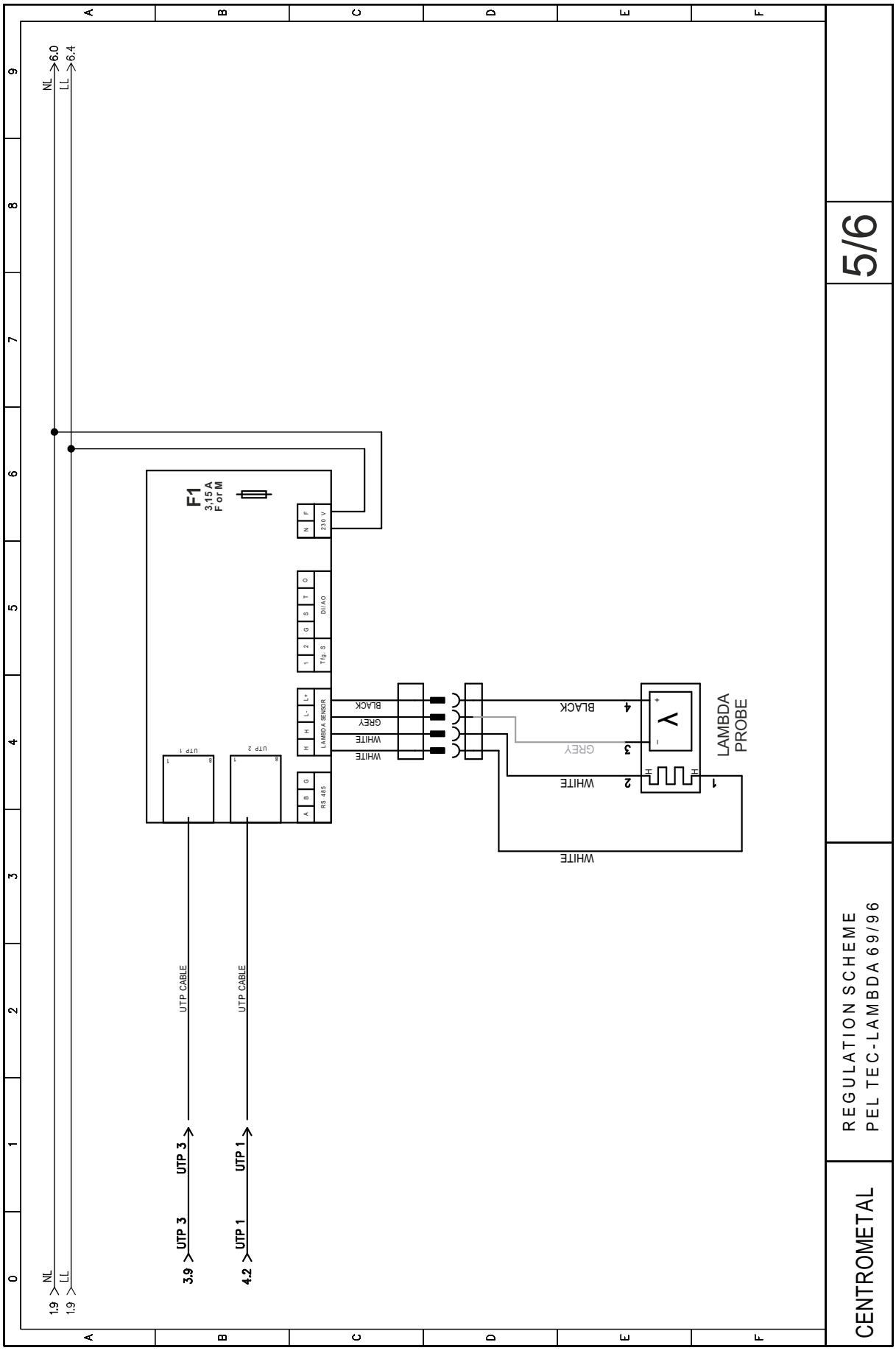
5.4.c ELECTRICAL SCHEME INPUTS (PelTec-lambda 69/96)



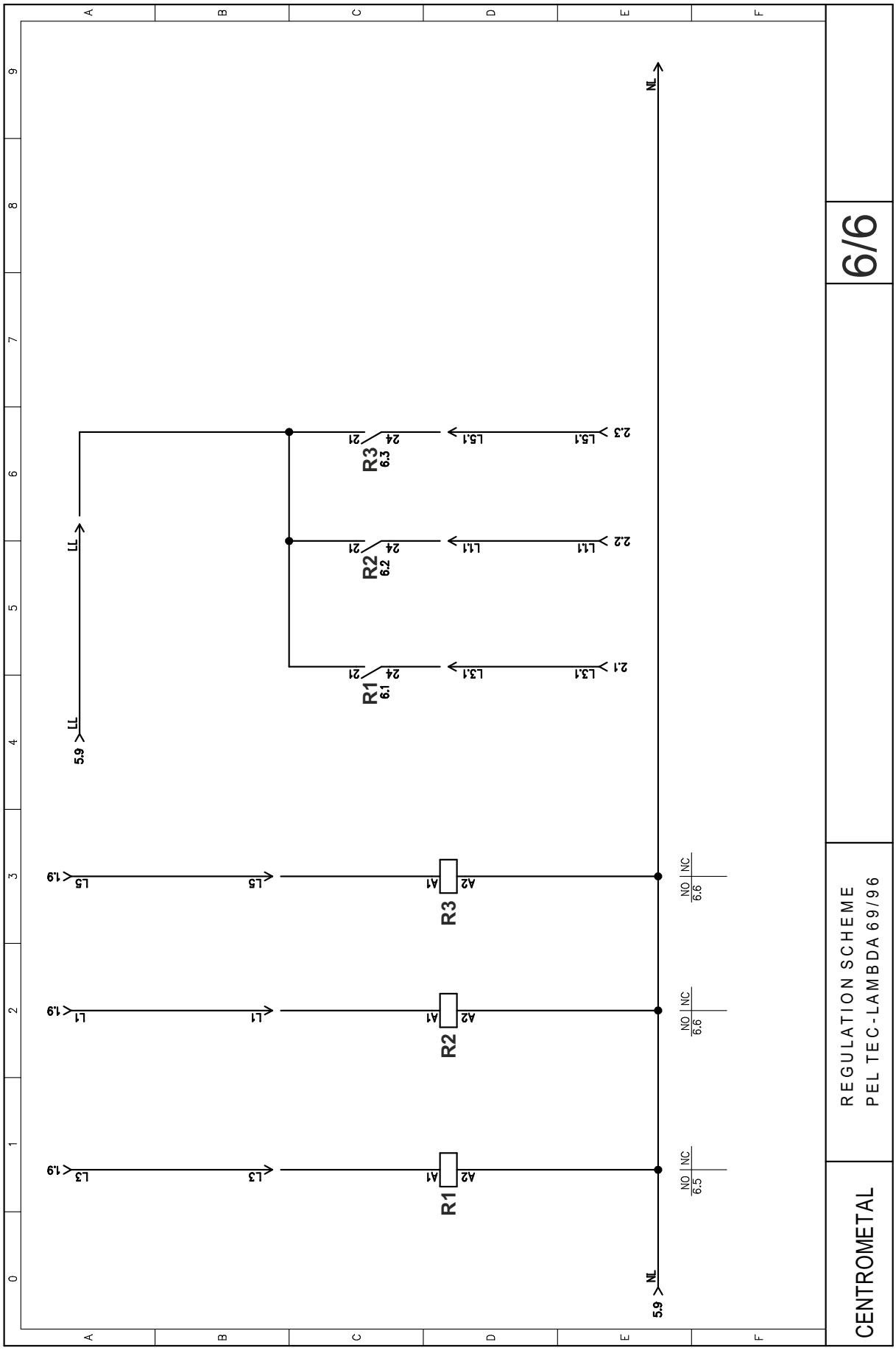
5.5.c ELECTRICAL SCHEME SENSORS (PelTec-lambda 69/96)



5.6.c ELECTRICAL SHEME LAMBDA PROBE (PelTec-lambda 69/96)



5.7.c ELECTRICAL SHEME PUMP RELAYS (PelTec-lambda 69/96)



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, its service agent or similarly qualified.

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 (see point 4.0) 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 / PelTec-lambda digital control unit 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 TANK WITH FUEL

CAUTION:

Use only permitted pellets!

6.3. BOILER USE

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.

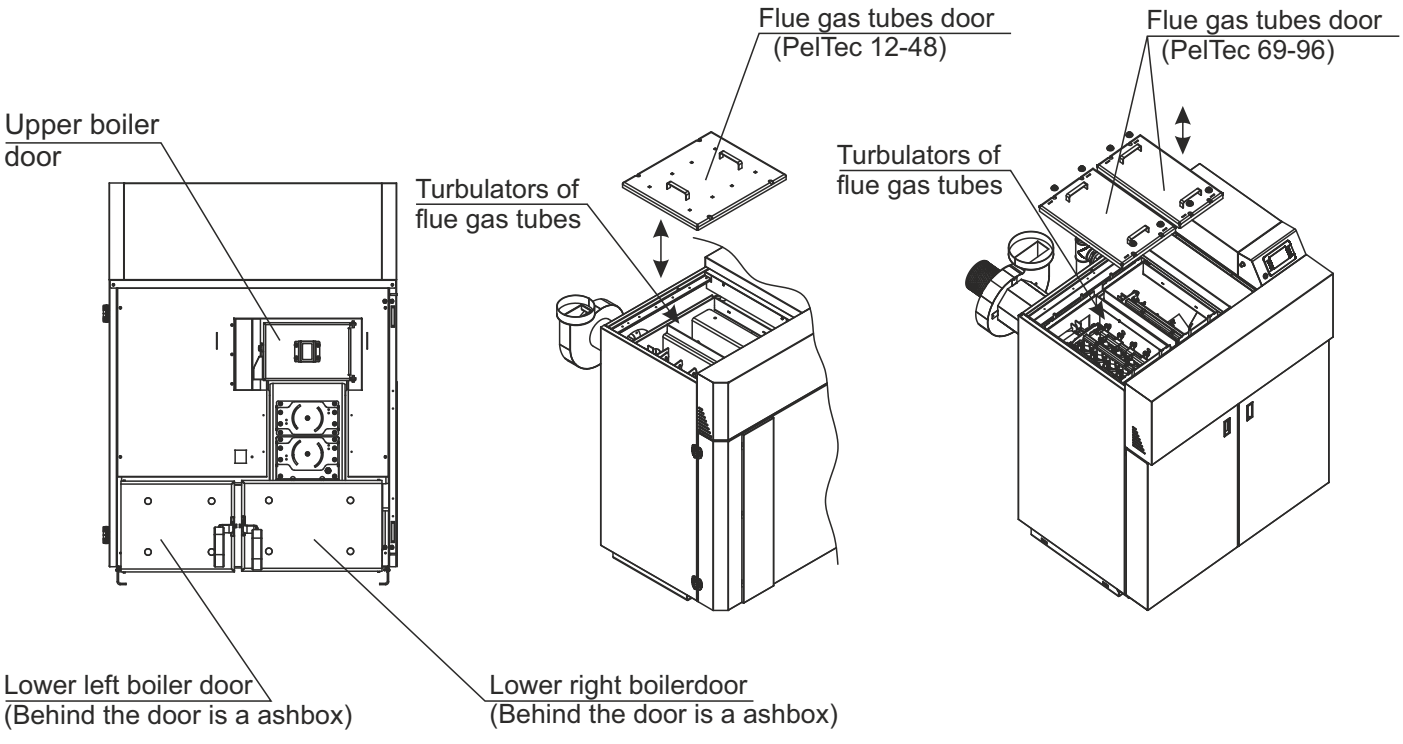
Note:
Before every use chech if the boiler doors and cover door are closed (Figure 4).

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-threating poisoning!

Picture 9. PelTec / PelTec-lambda boiler doors



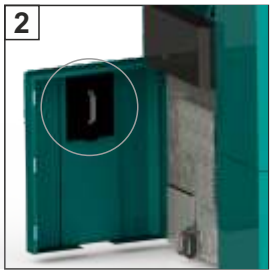
7.0. CLEANING AND MAINTENANCE

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
After spent 600-800 kg of pellets	69kW	Discharge ash boxes
After spent 800-1000 kg of pellets	96kW	Discharge ash boxes

Emptying the ash box:

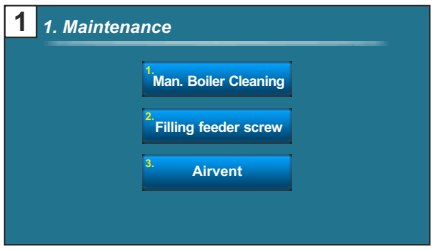


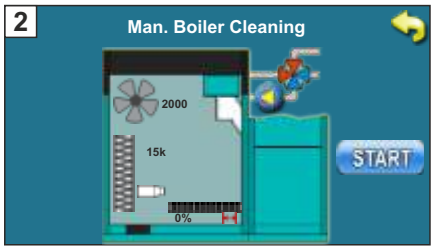
1. Take out ash boxes.
2. For carrying ash boxes, use a protective cover which is located on the inside of front door. For boilers 18-96 kW take out one by one box in order to use the same cover (Figure 2).
3. Attach the cover to the 3 holes (Figure 3.4) .
4. Put the cover and ash box back to original position.

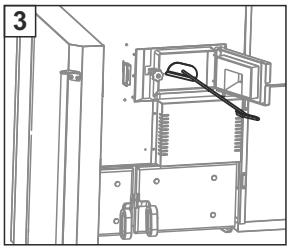
IMPORTANT! The ash can be disposed of only in a metal container!

Cleaning interval	Boiler type	Description
At least once per year (This procedure is very simple and is recommends even more often)	12-96 kW	Cleaning of exchanging surfaces (above the burner)

Claning of exchanging surfaces (above the burner)

1


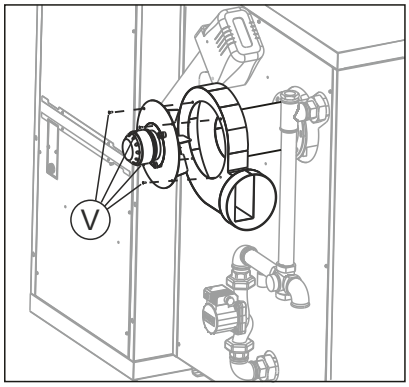
2


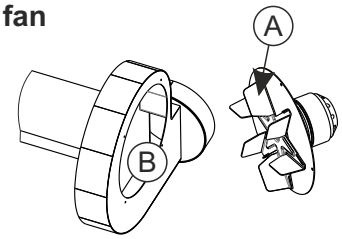
3


1 - Press the "maintenance" on the regulation and then "Boiler Cleaning".
2 - Press "START" (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 front door of the boiler.

Cleaning interval	Boiler type	Description
When needed	12-96 kW	Cleaning the blades and box of the fan

Cleaning the blades and box of the fan

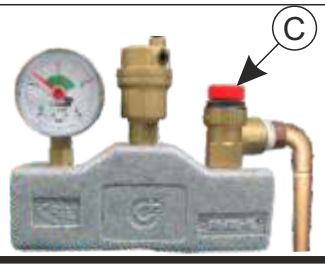




6


1. Switch off the boiler and disconnect from electric. power.
2. Pull out the 7 pin connector (Figure 6) from boiler control unit. Then unscrew four screws (V) and remove the fan, clean the fan blades (A), check the condition of the fan box (B) and clean it when is necessary by using vacuum cleaner or remove it from the boiler and clean thoroughly.
3. Set back the fan into original position and secure it with screws, then connect 7-pin connector on the M3 (see page 24, figure 5) and connect the power supply to the boiler.

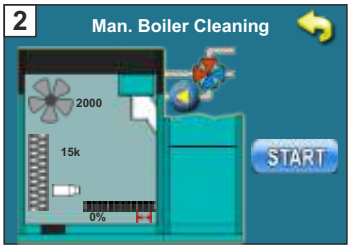
Cleaning interval	Boiler type	Description
Every 6 months	12-96 kW	Check the correctness of security valve



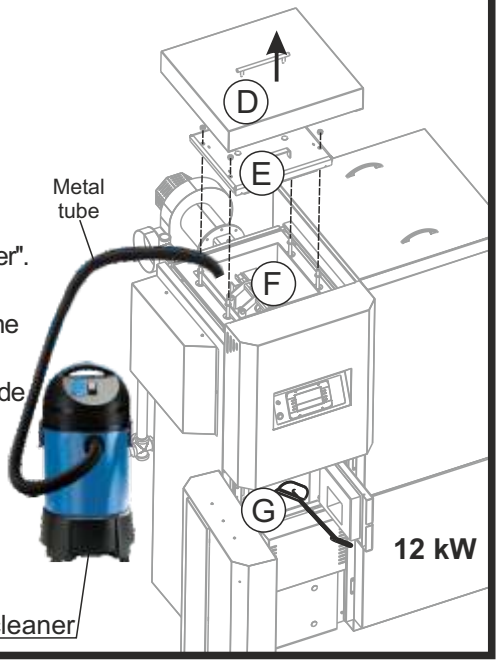
Checking the correctness of security valve

By briefly turning the cap of safety valve (C) 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.

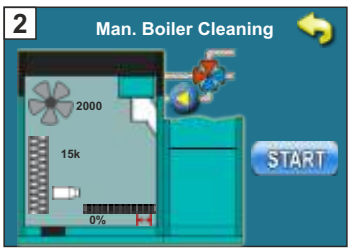
Cleaning interval	Boiler type	Description
At least once per year	12 kW	Cleaning of exchanging surfaces (around the entire boiler)



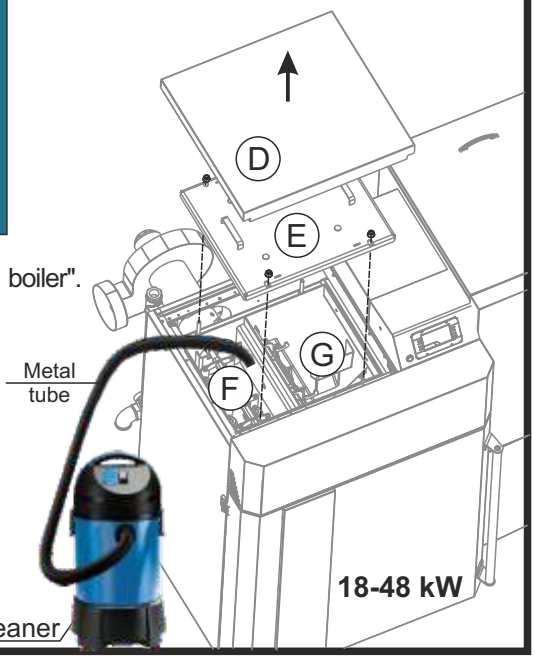
1. Press "Maintenance" on the regulation and then "Cleaning the boiler".
2. Press "START" (it will start the fan and it will open a grate.)
3. Lift the top cover (D), then unscrew the four screws and remove the upper door (E).
4. By using scraper, brush and vacuum cleaner, through the upper side and 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 regulation ( ) to return boiler to normal mode.



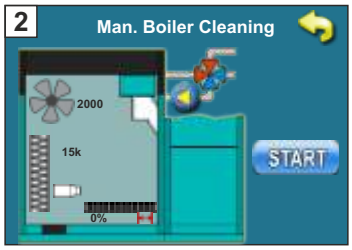
Cleaning interval	Boiler type	Description
At least once per year	18-48 kW	Cleaning of exchanging surfaces (around the entire boiler)



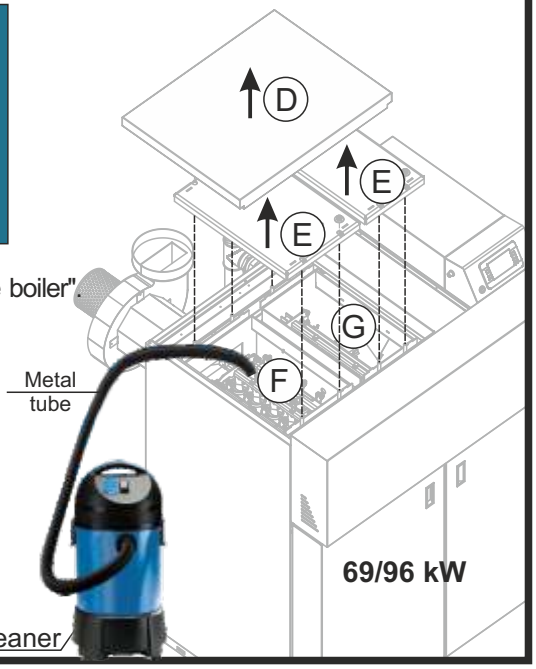
1. Press "Maintenance" on the regulation and then "Cleaning the boiler".
2. Press "START" (it will start the fan and it will open a grate.)
3. Lift the top cover (D), then unscrew the four screws and remove the upper door (E).
4. By using scraper, brush and vacuum cleaner, through the upper side clean 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. Then press "back" on the regulation ( ) to return boiler to normal mode.



Cleaning interval	Boiler type	Description
At least once per year	69/96 kW	Cleaning of exchanging surfaces (around the entire boiler)



1. Press "Maintenance" on the regulation and then "Cleaning the boiler".
2. Press "START" (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 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. Then press "back" on the regulation ( ) to return boiler to normal mode.



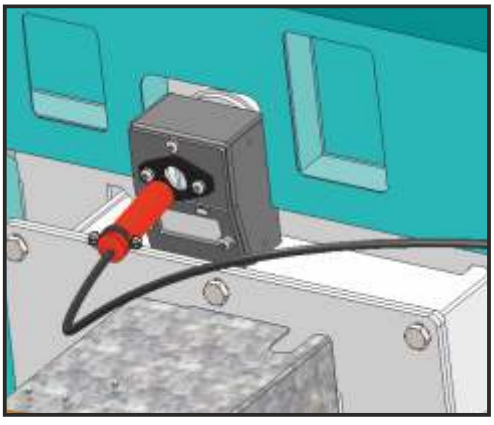
Metal vacuum cleaner

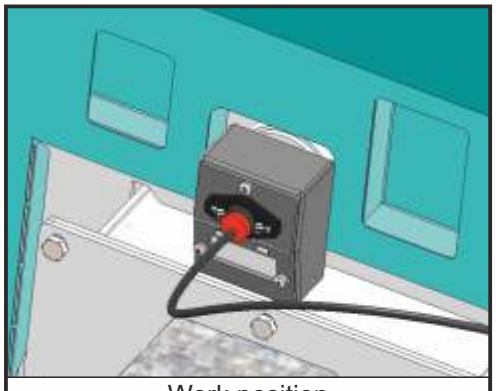
Cleaning interval	Boiler type	Description
At least once a year (or if you have problems with the ignition)	12-96 kW	Photocell cleaning

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	12-96 kW	Cleaning and checking the flue installation sealing

Cleaning and checking the flue installation sealing

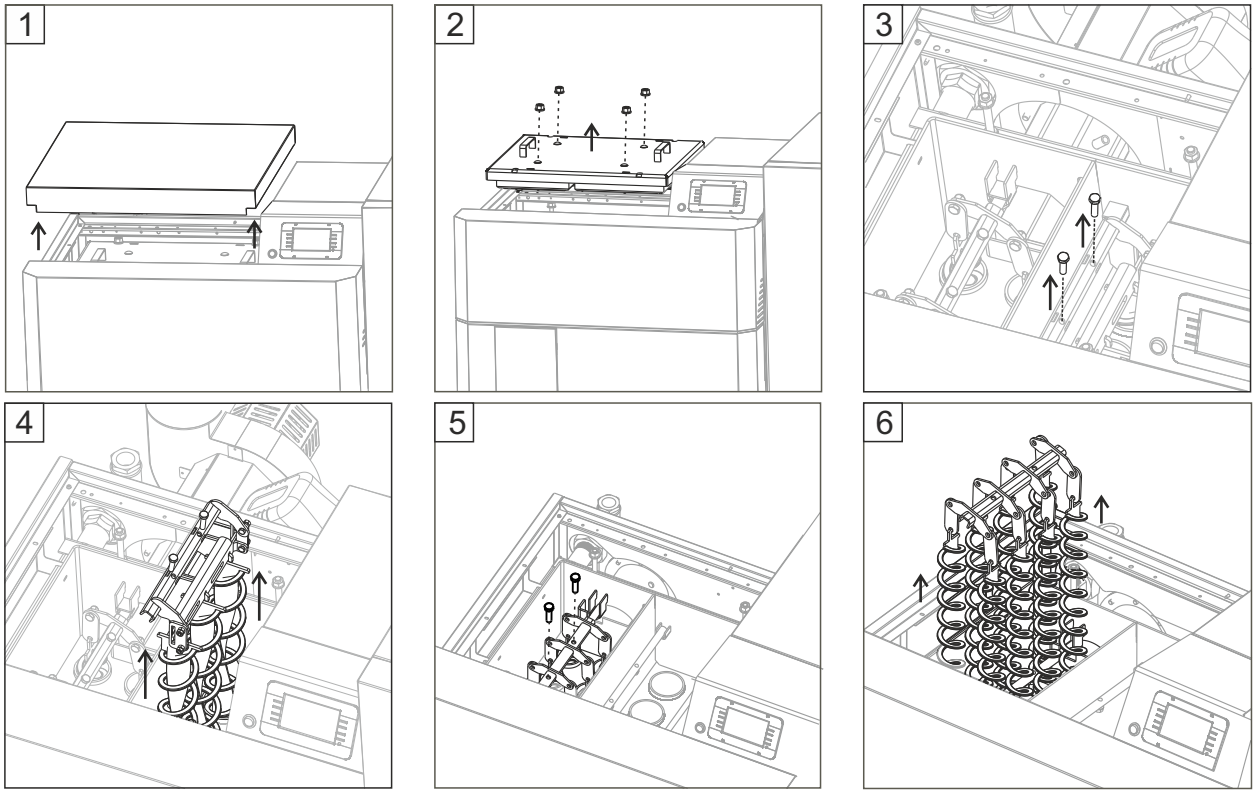
Clean flue installation between the boiler and the chimney through the revision openings for cleaning or if not incorporated revision opened by removing the flue installation. After cleaning, inspect flue installation good sealing and seal it if the seal is not satisfactory.

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.

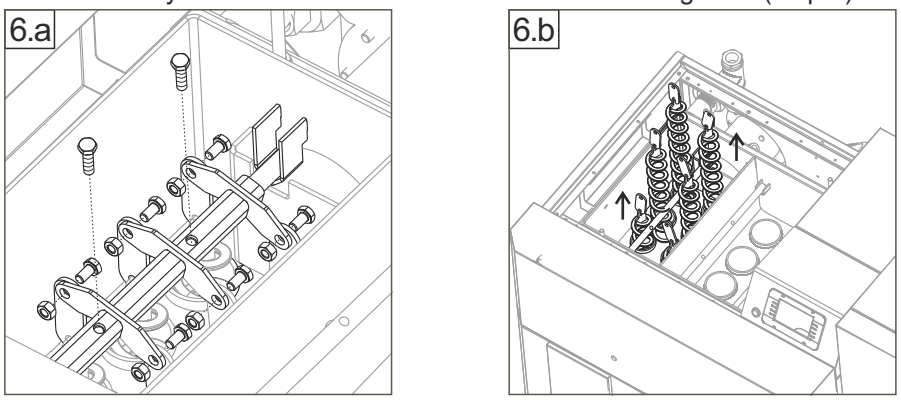
1. **Electric heater**
2. **Failure on distribution power box with digital boiler control unit**
3. **Fan failure**
4. **Pellet feeder Motor failure**
5. **Temperature sensors failure**
6. **Photocell failure**

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

7.1.1. EXTRACTION OF TURBULATORS - PelTec/PelTec-lambda 12-48



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

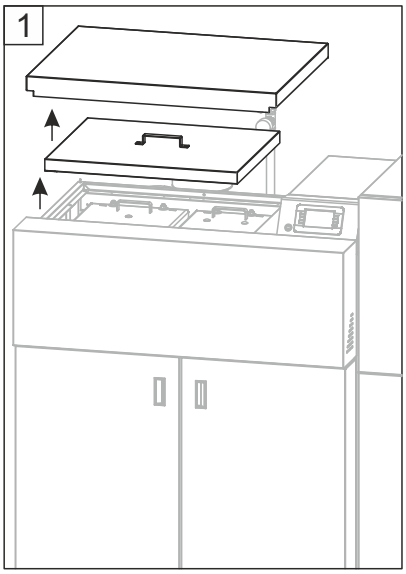


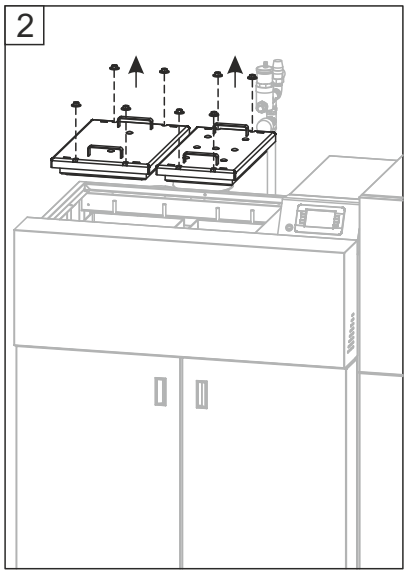
1 - Remove the casing cover.
2 - Unscrew the 4 srews and remove the flue ducts door.
3,4 - Unscrew the 2 srews and lift turbulators (first pass) with bracket as shown in picture.
5 - Unscrew the 2 srews from carrier on second pass.
6 - Remove all turbulators with carrier. (If you can't remove all turbulators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

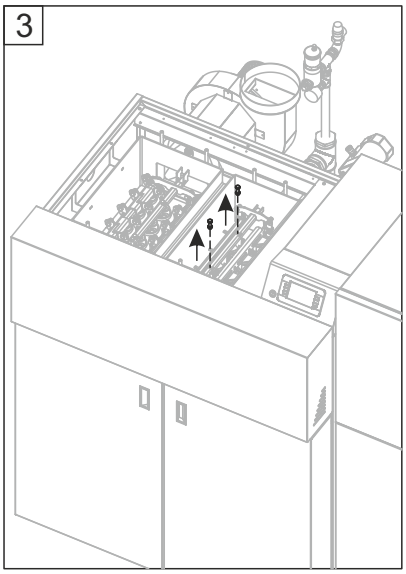
NOTE:
Place turbulators back in the same way but in the reverse order!
There are 1 or 2 sets of turbulators (depending on the model of boiler)

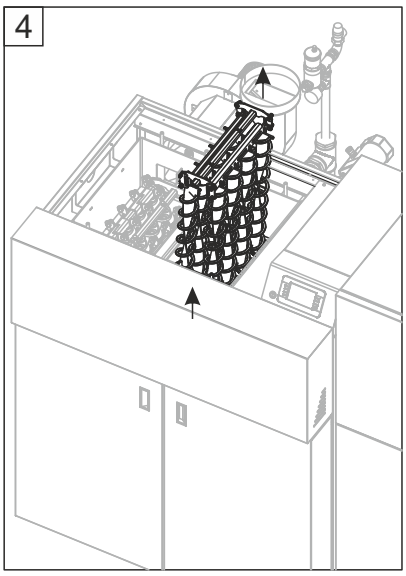
PROTECTIVE GLOVES ARE OBLIGATORY!

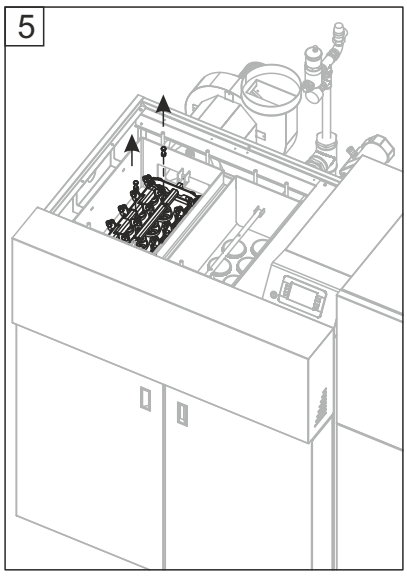
7.1.2. EXTRACTION OF TURBULATORS - PelTec-lambda 69-96

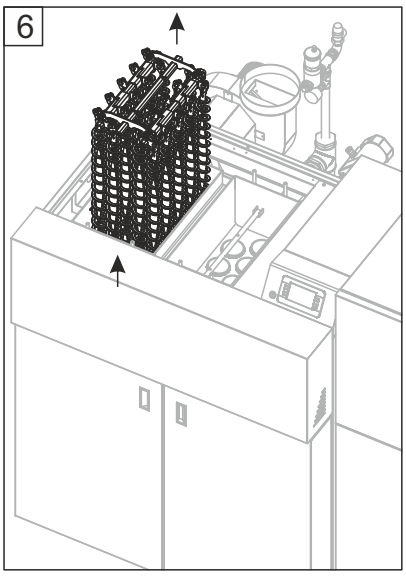


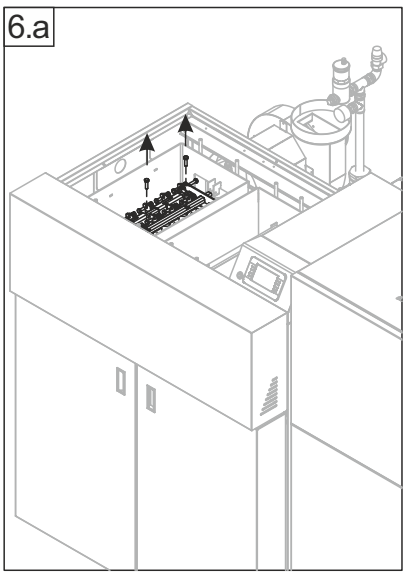


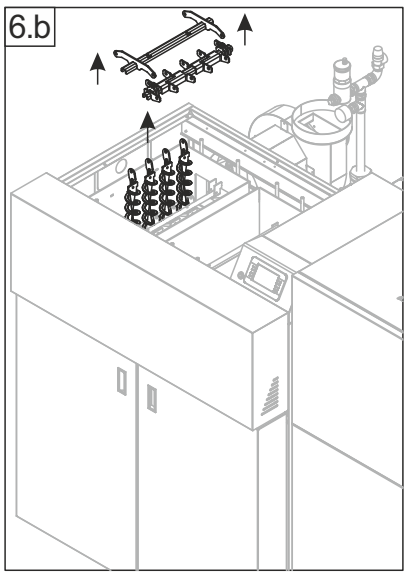












PROTECTIVE GLOVES ARE OBLIGATORY!

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

1 - Remove the casing cover.
2 - Unscrew the 8 srews and remove 2 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 (6.b).

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)

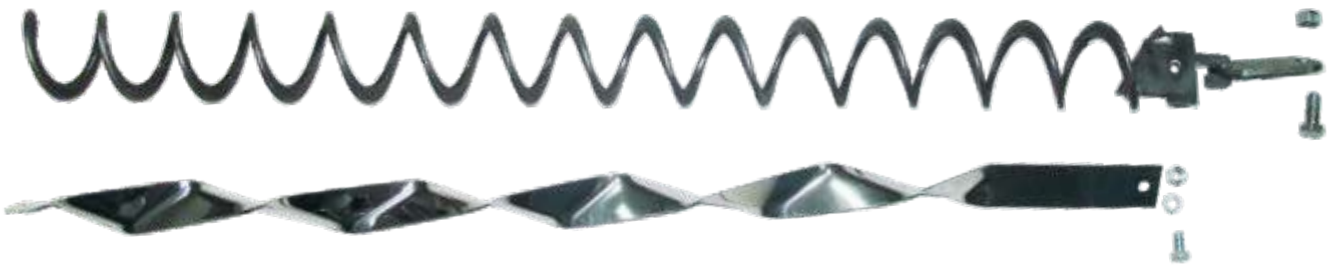
7.2. EXTRACTION OF HELICAL METAL PLATE FROM SECOND PASS TURBULATORS

For extracting of helical metal plate from turbulators is neccessary to unscrew nut and pull out helical metal plate from the bottom. With this action the flue gas temperature (in boiler work) will be increased but if there si no other solution for chimney condensation prevention (reduction to acceptable level) that procedure is neccessary.

PROTECTIVE GLOVES ARE OBLIGATORY!!

Turbulator with helial metal plate

Extracted helical metal plate

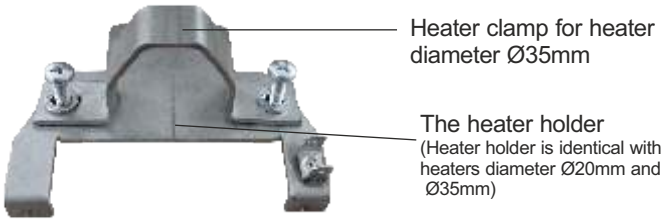


This procedure should do only authorized serviceman!

7.3 REPLACEMENT OF THE ELECTRIC HEATER - only PelTec/PelTec-lambda 12-48

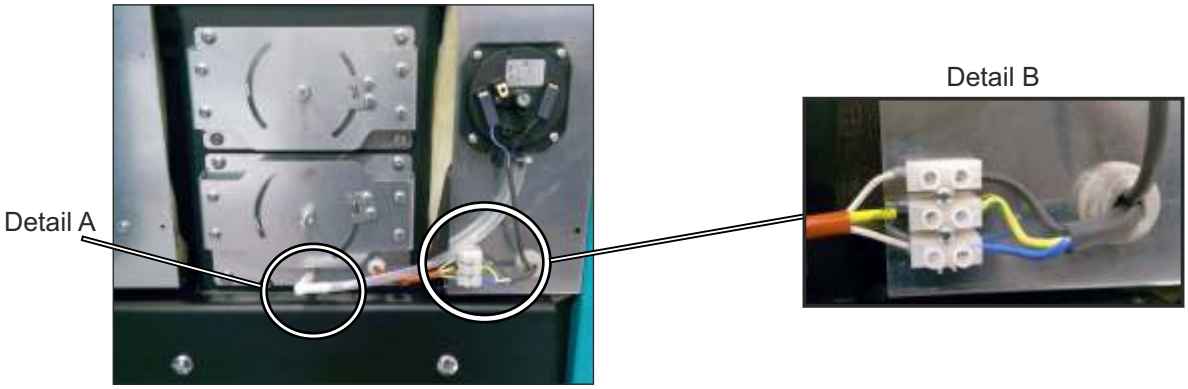
7.3.1 REPLACEMENT OF THE EL. HEATER WITH NEW EL. HEATER DIAMETER Ø35mm

Electric heater with a diameter of Ø 35 mm

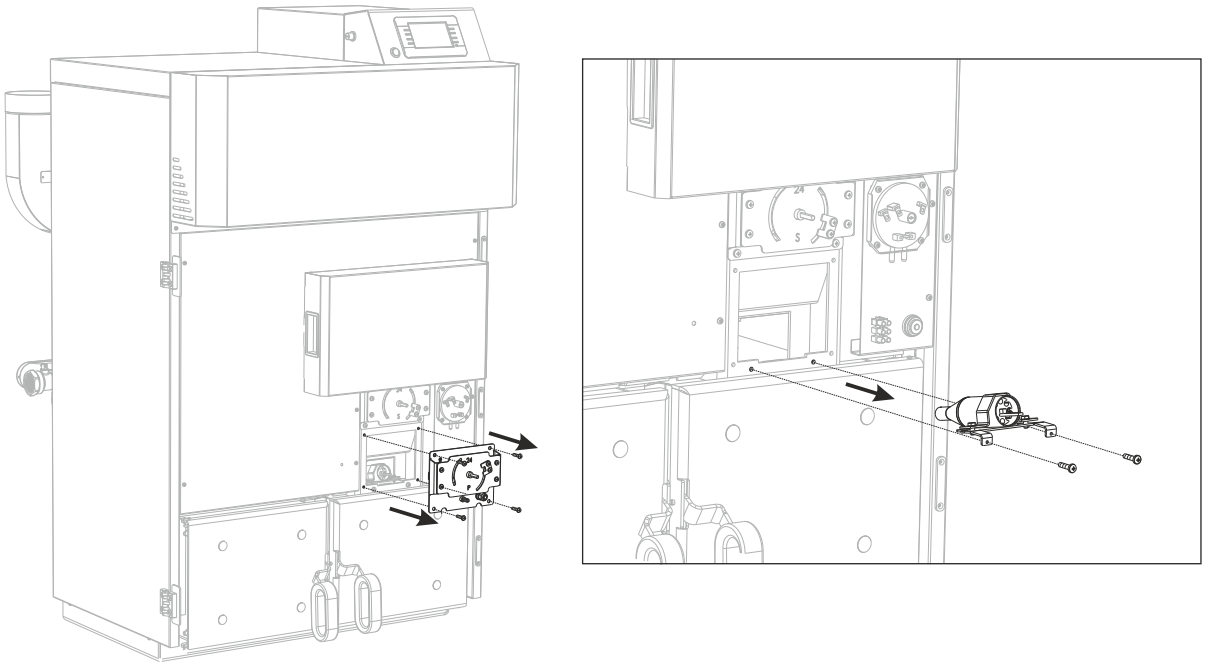


The heater holder with clamp for electric heater with a diameter of Ø35 mm

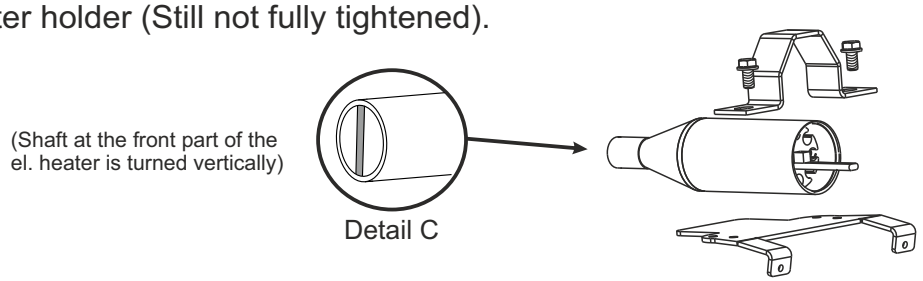
1.Unplug the safety pressure switch tube (detail A), and disconnect the wires of the electric heater from the terminal block (Detail B).



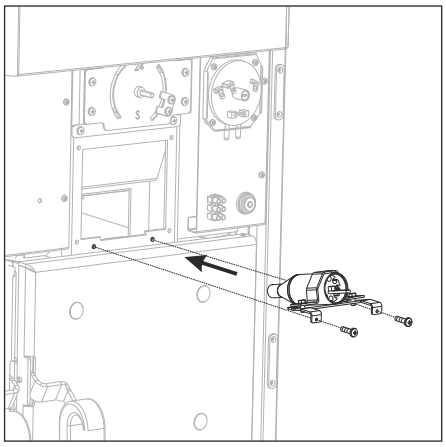
2. Unscrew the 4 screws and remove the primary air regulation. Then unscrew the 2 heater holder screw and pull out heaters holder together with the el. heater.

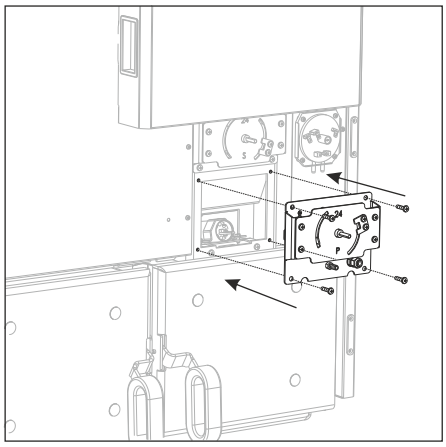


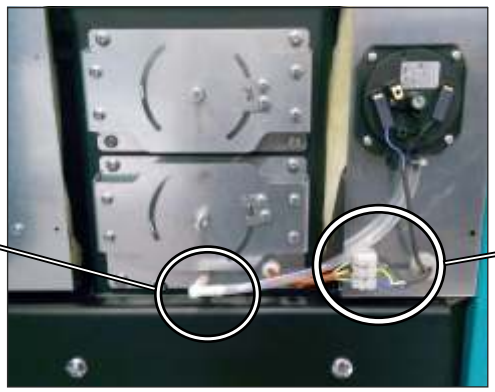
3. Unscrew the two screws and remove the heater clamp. Insert the new el. heater, turn it so that the shaft at the front part of the el heater is turned vertically (see detail C) and gently attach it to the heater holder (Still not fully tightened).



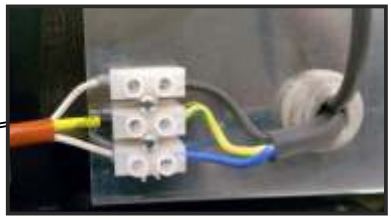
4. Place the el. heater with the holder in place and fasten it with two screws. The heater set to the inner edge of the hole burner (see detail D). If necessary, loosen the clamp of the heater holder and push the holder until the edge of the burner hole and then tighten the clamp. Place the primary air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



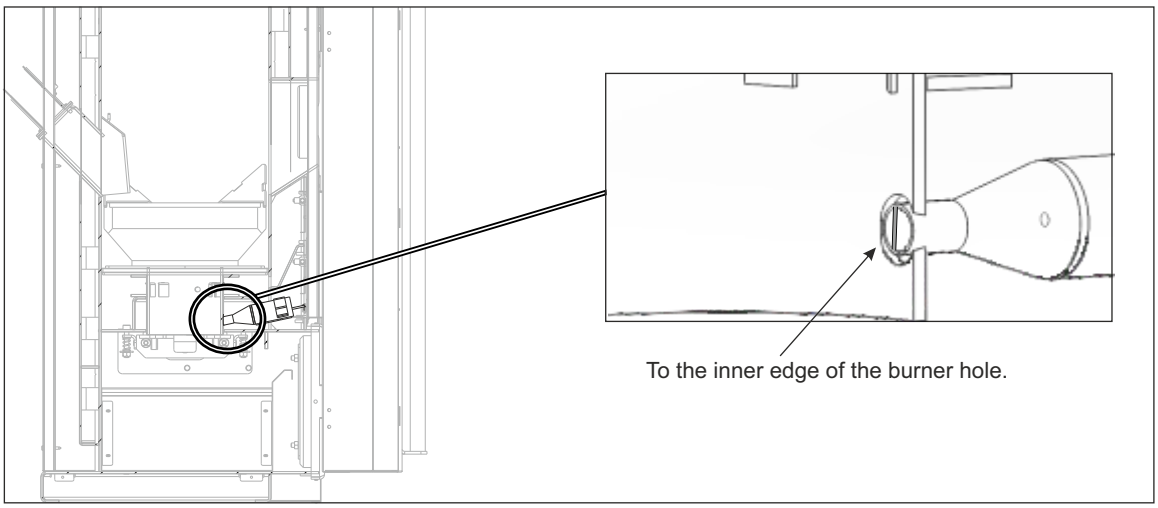




Detail B

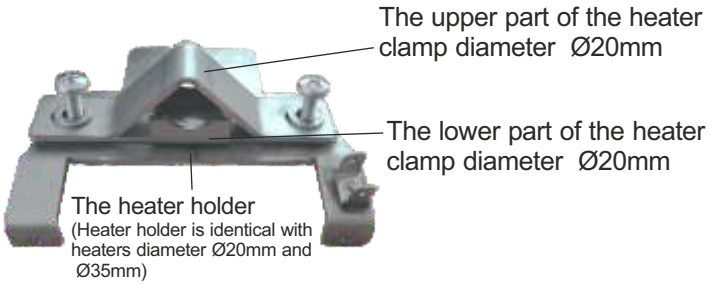


Detail D



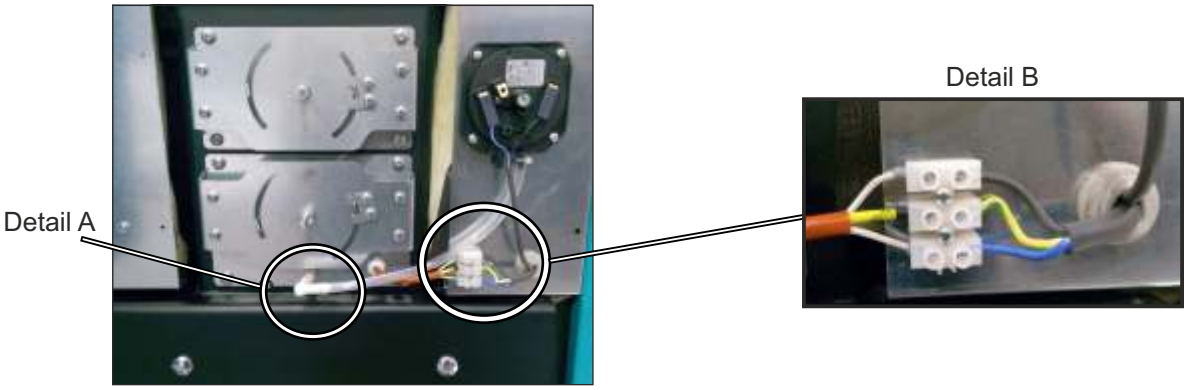
7.3.2 REPLACEMENT OF THE EL.HEATER WITH NEW EL. HEATER DIAMETER Ø20mm

Electric heater with a diameter of Ø 20 mm

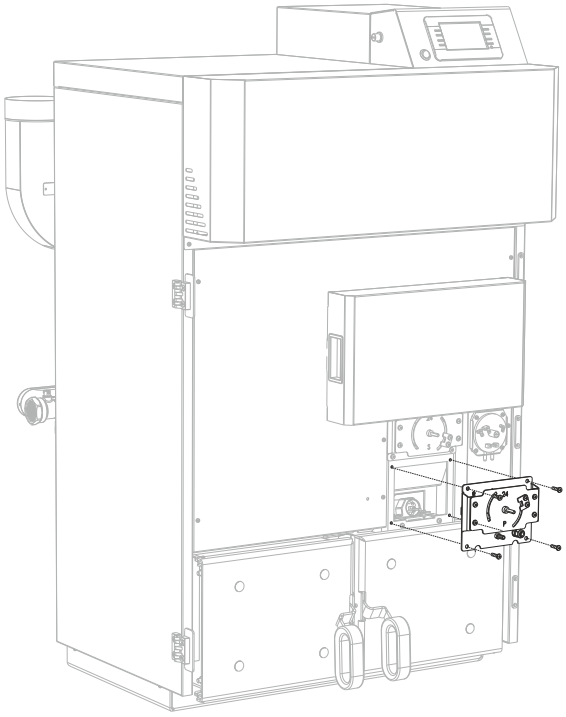


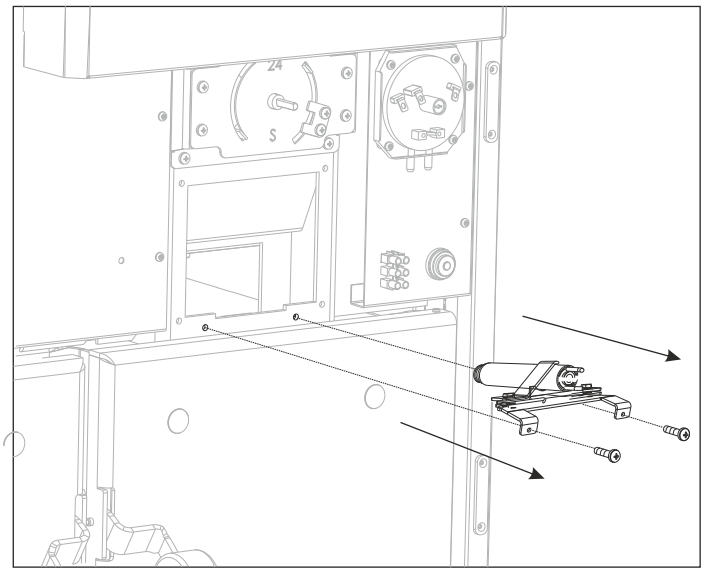
The heater holder with clamp for electric heater with a diameter of Ø 20 mm

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

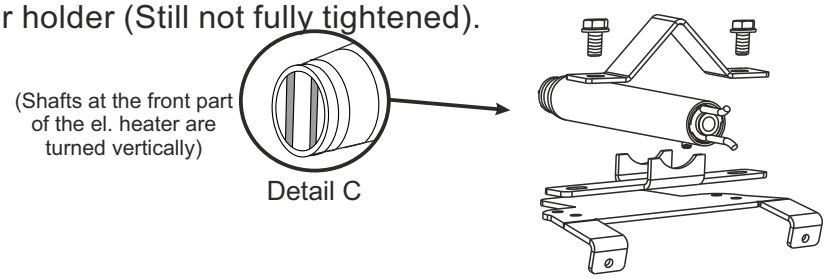


2. Unscrew the 4 screws and remove the primary air regulation. Then unscrew the 2 heater holder screw and pull out heaters holder together with the el. heater.

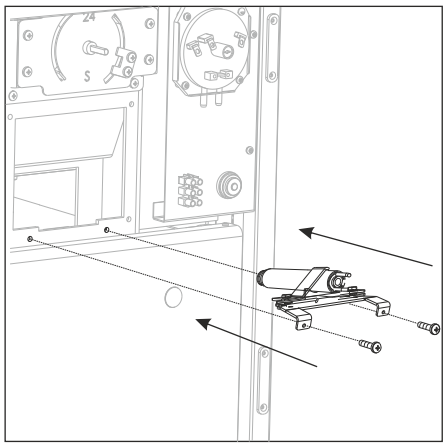


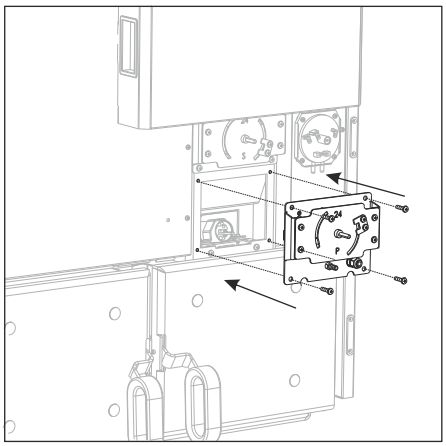


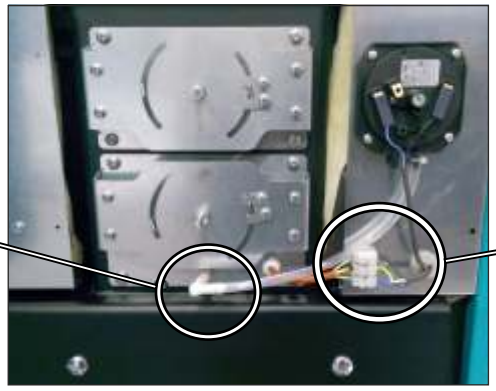
3. Unscrew the two screws and remove the heater clamp. Insert the new el. heater, turn it so that the shafts at the front part of the el heater are turned vertically (see detail C) and gently attach it to the heater holder (Still not fully tightened).



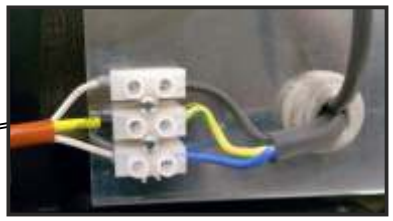
4. Place the el. heater with the holder in place and fasten it with two screws. Set the heater to the inner edge of the hole burner (see detail D). If necessary, loosen the clamp of the heater holder and push the holder until the edge of the burner hole and then tighten the clamp. Place the primary air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



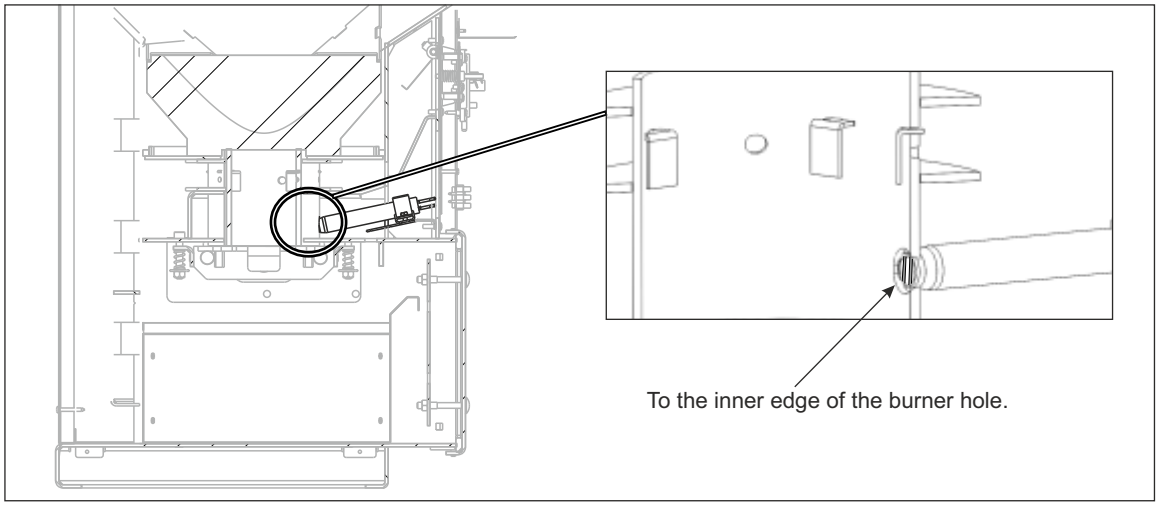




Detail B



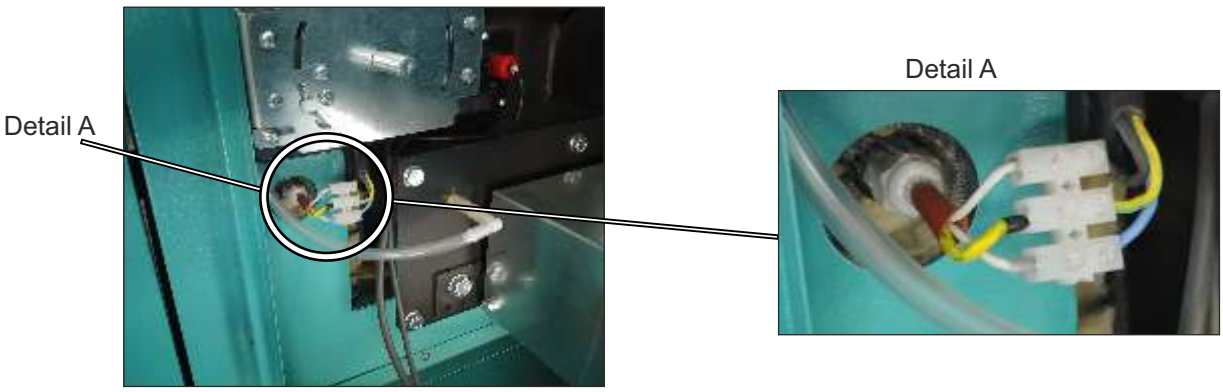
Detail D



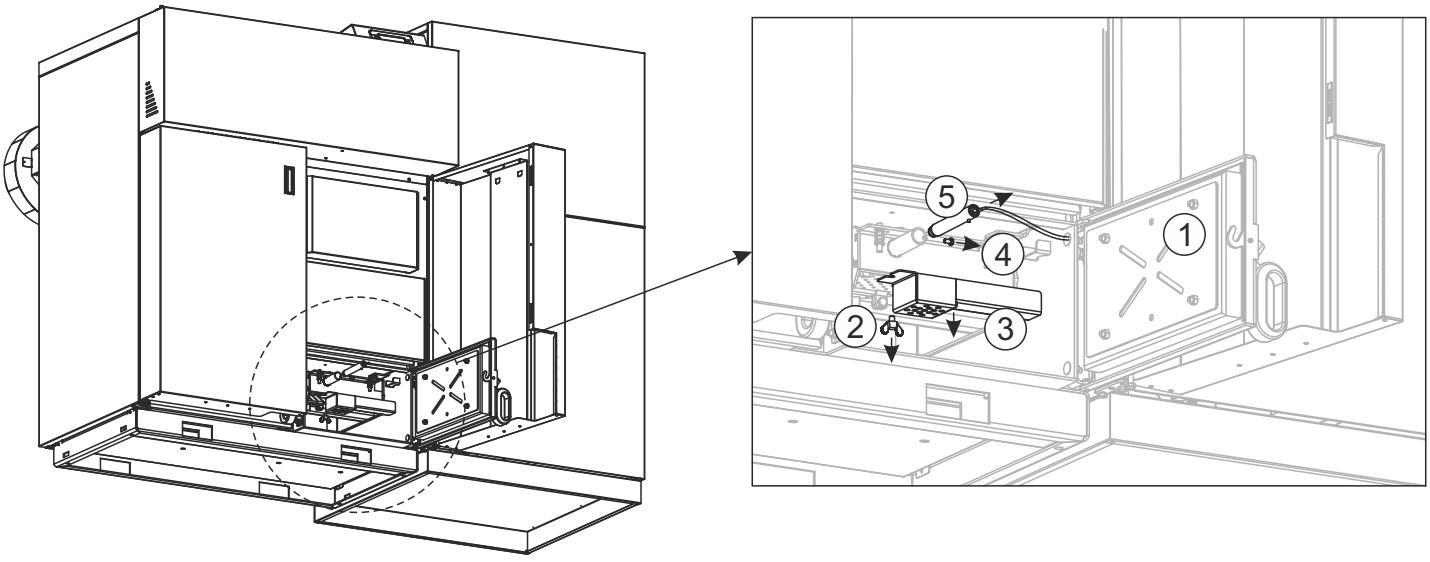
7.3.3 REPLACEMENT OF THE EL.HEATER - only PelTec-lambda 69/96

Electric heater with a diameter of Ø 20 mm

1. Disconnect the wires of the electric heater power supply from the terminal block (Detail A). Terminal block is located on the right boiler side, behind lower pellet tank door.



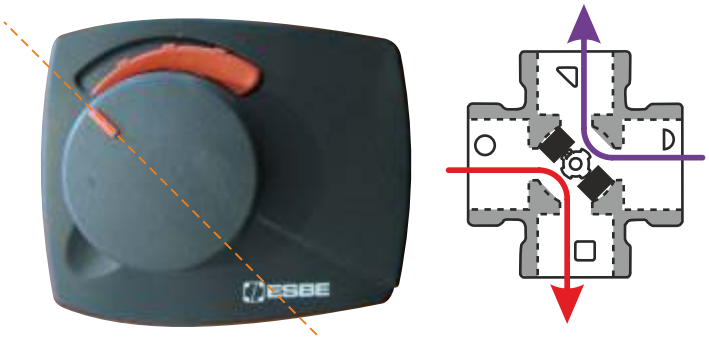
2. Open the lower right boiler door (1) and unscrew 1 M8 screw (2) to remove el. heater protection (3). Unscrew 1 M6 screw (4) and remove old el. heater (5).



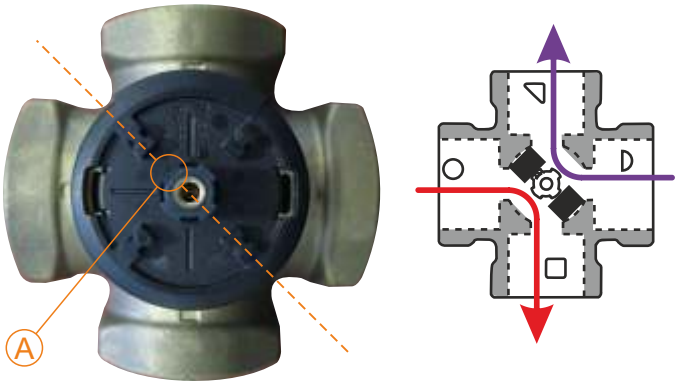
INSTALLATION OF ACTUATOR (IF THE BOILER WORKED)

If the boiler worked, actuator of the 4-way mixing valve can be removed only when the boiler is in OFF mode (not working). When boiler is in OFF mode, from ''Manual test'' menu press ''Close valve'' button and wait until valve closes completely (until valve actuator stops).

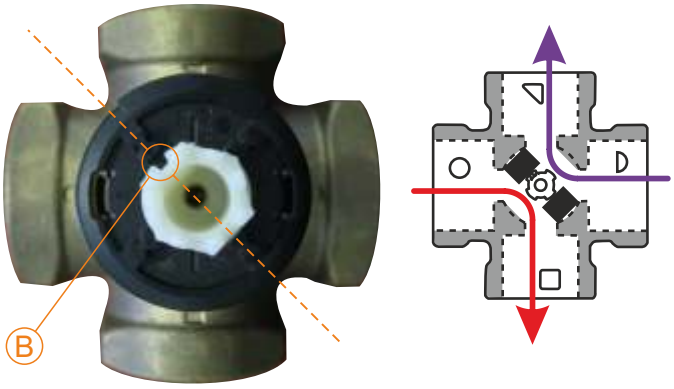
1. Actuator position when the boiler is not working (valve is closed)



2. 4-way mixing valve position when the boiler is not working (valve is closed); designation on the axle "A" is the top left corner (45°)



3. Designation position on actuator clutch before assembly, designation on the clutch "B" is at the top left corner (45°)



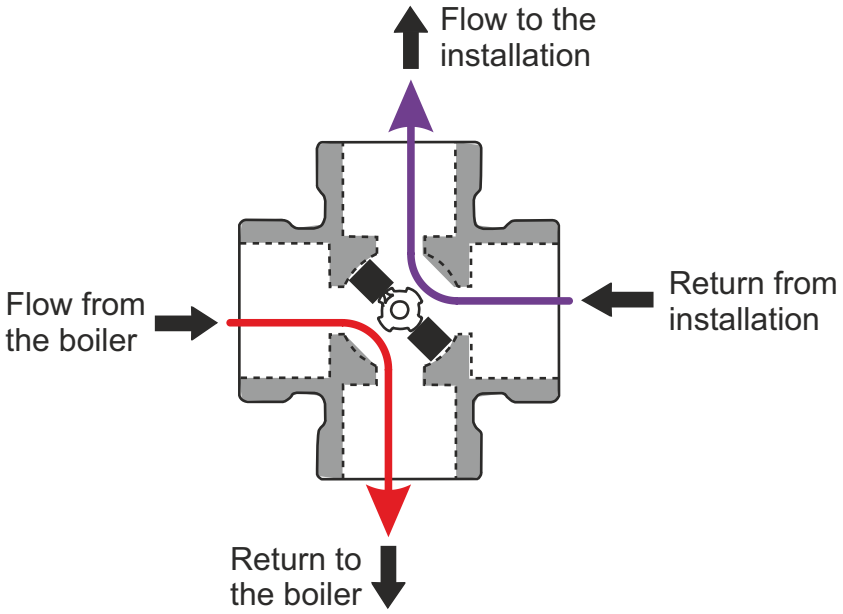
4. Set the actuator as shown below the movable part of the device must be turned so that green delimiter "C" is aligned with the groove of the handle "D" and it is in the top left corner (45°)

5. Tighten the screw to secure the actuator (when the screw is tightened, the movable part of the actuator is rotated to the right side, to the end position)

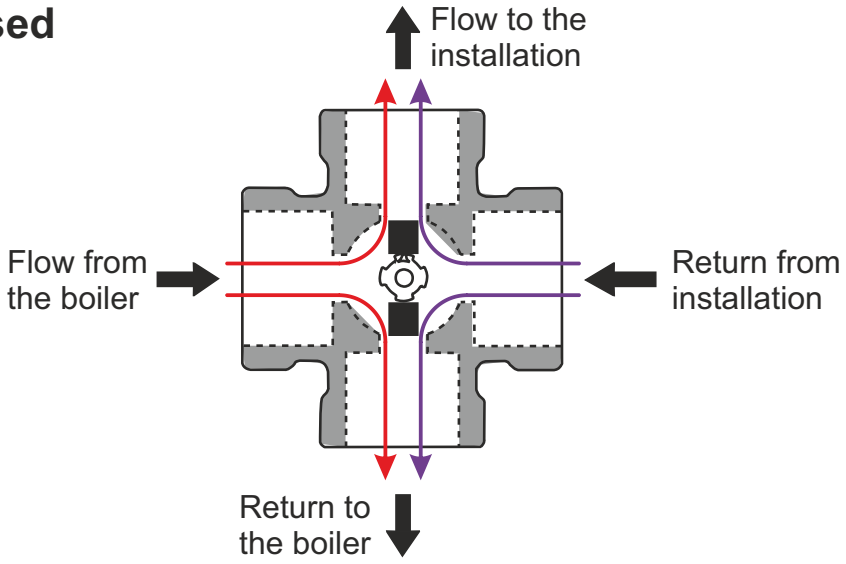
6. Install actuator handle, rotate it to the left until it can be pushed in the DOWN position
- Automatic operation

7. Actuator in DOWN position
- Automatic operation; boiler ready for operation

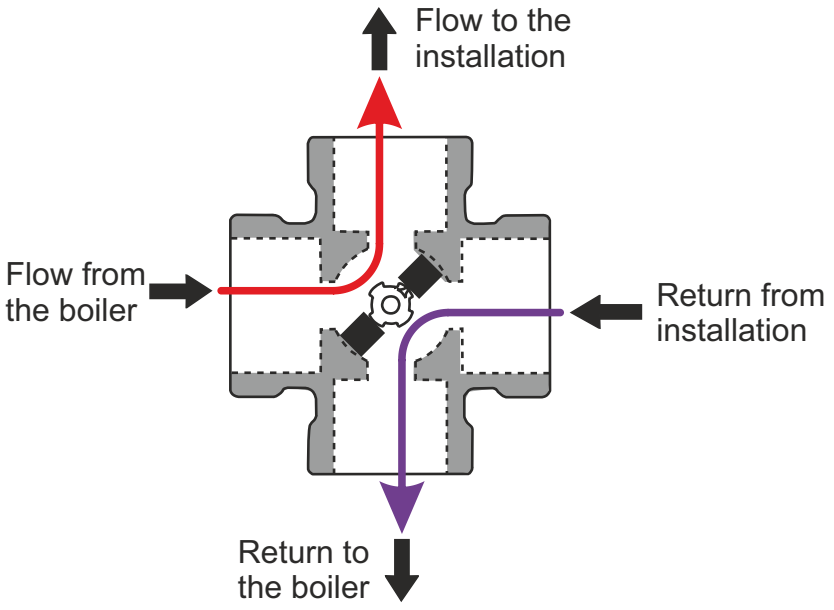
Valve is 100% closed



Valve is 50% opened/closed

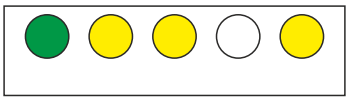


Valve is 100% opened



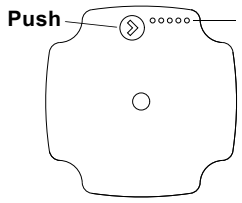
PUMP SETTING - GRUNDFOS UPM3 HYBRID (PelTec/PelTec-lambda 12-48)

Pump is factory preset to constant curve, curve 4. This setting can be checked by short press of the button (after short press for 2 seconds pump setting is displayed). Factory setting LEDS are displayed below (LED 1 = green, LED 2 = yellow, LED 3 = yellow, LED 4 = off, LED 5 = yellow).



FACTORY SETTING (constant curve, curve 4)

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



User interface with one push button and five LEDs

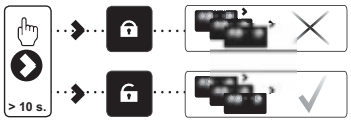
The user interface shows:
• performance view (during operation)
 - operation status
 - alarm status
• settings view (after pressing the button).
During operation, the display shows the performance view. If you press the button, the user interface switches the view or runs in the setting selection mode.

Performance view
The performance view shows either the operation status or the alarm status.

Operation status
When the circulator is running, LED 1 is green. The four yellow LEDs indicate the current power consumption (P1) as shown in the table below. See figure. When the operation mode is active, all active LEDs are constantly on in order to differentiate this mode from the select setting mode. If the circulator is stopped by an external signal, LED 1 flashes green.

Display	Indication	Performance in % of P1 MAX
One green LED (flashing)	Standby (only externally controled)	0
One green LED + one yellow LED	Low performance	0-25
One green LED + two yellow LED	Medium low performance	25-50
One green LED + three yellow LED	Medium high performance	50-75
One green LED + four yellow LED	High performance	75-100

Navigation
Key lock function
The purpose of the key lock function is to avoid accidental change of settings and misuse. When the key lock function is enabled, all long key presses will be ignored. This prevents the user from entering the "select setting mode" area and allows the user to see the "show setting mode" area. If you press the key lock for more than 10 seconds, you can toggle between enabling/disabling the key lock function. When doing so, all LEDs, except for the red LED, will flash for a second indicating that lock is toggled.



Alarm status
If the circulator has detected one or more alarms, the bi-colored LED 1 switches from green to red. When an alarm is active, the LEDs indicate the alarm type as defined in the table below. If multiple alarms are active at the same time, the LEDs only show the error with the highest priority. The priority is defined by the sequence of the table. When there is no active alarm anymore, the user interface switches back to operation mode.

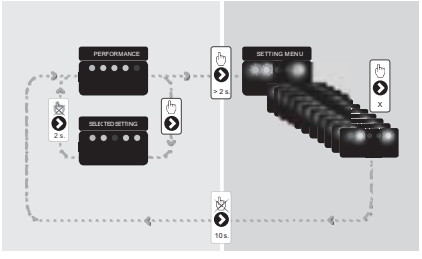
Display	Indication	Pump operation	Counter action
One red LED + one yellow LED (LED 5)	Rotor is blocked	Trying to start again every 1.33 seconds	Wait or deblock the shaft
One red LED + one yellow LED (LED 4)	Supply voltage to low	Only warning, pump runs	Control the supply voltage
One red LED + one yellow LED (LED 3)	Electrical error	Pump is stopped because of low supply voltage or serious failure	Control the supply voltage, replace the pump

Settings view
You can switch from the performance view to the settings view by pressing the push button. The LEDs indicate the actual setting. The settings view shows which mode controls the circulator. No settings can be made at this stage. After 2 seconds, the display switches back to performance view. If LED 1 is green, it indicates operation or internal control. If LED 1 is red, it indicates alarm or external control. LED 2 and 3 indicate the different control modes and LED 4 and 5 indicate the different curves.

	LED 1	LED 2	LED 3	LED 4	LED 5
Proportional Pressure	green	●			
Constant Pressure	green		●		
Constant Curve	green	●	●		
PWM A profile	red	●			
PWM C profile	red		●		
Curve 1					
Curve 2				●	
Curve 3				●	●
Curve 4/AUTO $_{ADAPT}$					●

Note: ● = The LED is yellow

Setting selection
You can choose between the performance view and settings view. If you press the button for 2 to 10 seconds, the user interface switches to "setting selection" if the user interface is unlocked. You can change the settings as they appear. The settings appear in a particular order in a closed loop. When you release the button, the user interface switches back to the performance view and the last setting is stored.



Toggling the settings of UPM3
When you switch on the circulator, it runs with the factory pre-setting or the last setting. The display shows the current operation status.

1. Press the button to switch to the setting view. The LEDs show the current setting for 2 seconds.

2. Release the button for more than 2 seconds. The user interface shows the current performance in "operation status".

3. Press the button for more than 2 seconds and the circulator switches to "setting selection". The LEDs flash and show the current setting mode. Please note that if the key lock is disabled, the circulator will not switch to "setting selection". In this case, unlock the key lock by pressing the button for more 10 seconds.

4. During a period of 10 seconds, press shortly on the button and the circulator switches to the next setting.

5. To select between the settings, instantly press the button until you find the setting you want. If you pass a setting, you need to continue until the setting appears again as it is not possible to go back in the settings menu.

6. Release the button for more than 10 seconds and the user interface switches back to the performance view and the last setting is stored.

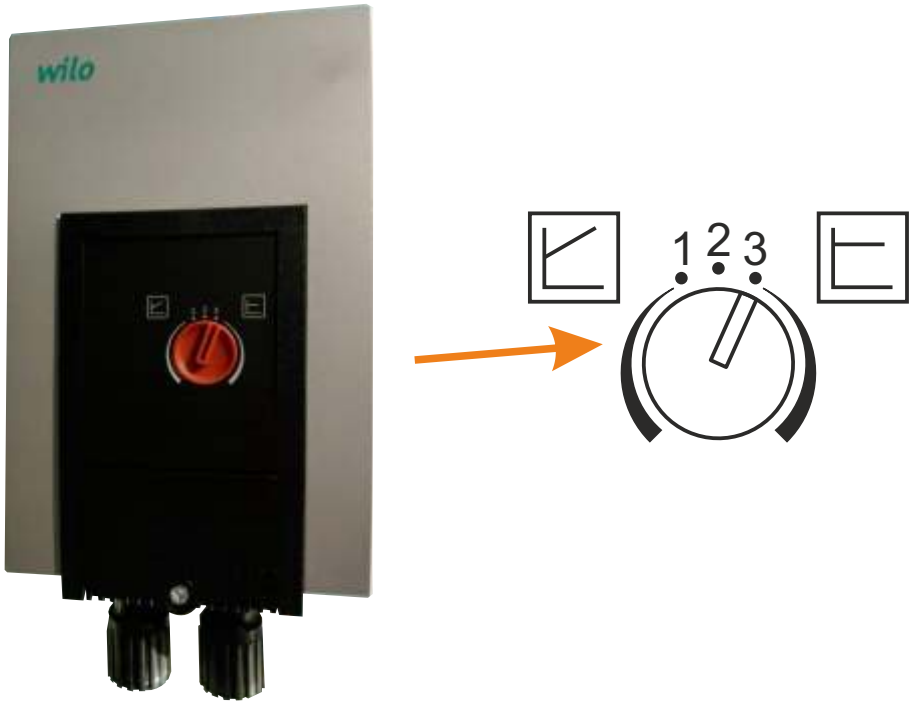
7. Press the button and the display switches to the setting view and the LEDs show the current setting for 2 seconds.

8. Release the button for more than 2 seconds and the user interface switches back to the performance view.

PUMP SETTING - WILO YONOS PARA HF 30/10 (PelTec-lambda 69)

PUMP SETTING - WILO YONOS PARA HF 30/12 (PelTec-lambda 96)

Pump is factory preset to maximum constant curve.



Notes

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