Centrometal
HEATING TECHNIQUE

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Technical manual

for the installation, use and maintenance

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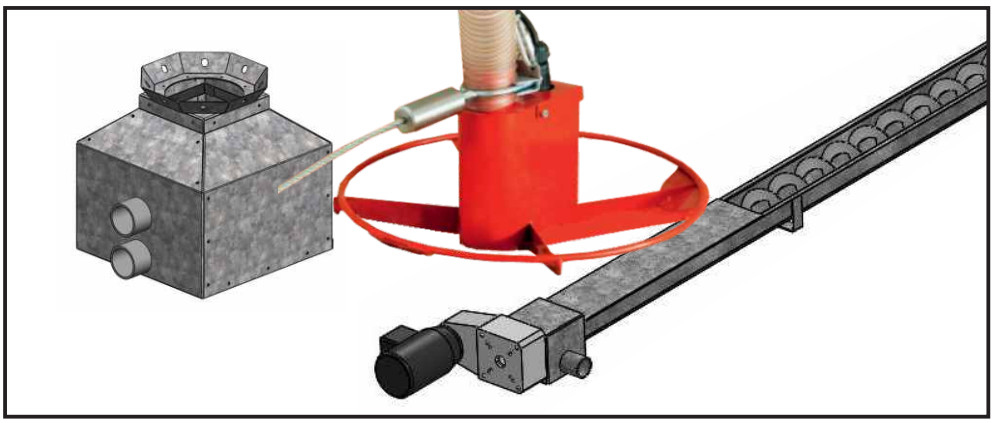


PELET SUCTION SYSTEM CVT

configuration: CVT + Mole, CVT + CentroPelet box, CVT + Feeder screw
mounting to: PelTec, PelTec-lambda, EKO-CK(B) P + Cm Pelet set, CentroPlus(-B) + Cm Pelet set, BioTec Plus

⚠	**READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING THE BOILER TO HEATING SYSTEM!**
⚠	**Boiler must not operate in flammable and explosive environment.**
⚠	**Boiler 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.**
⚠	**Before any work on the boiler, electric energy must be switched off.**

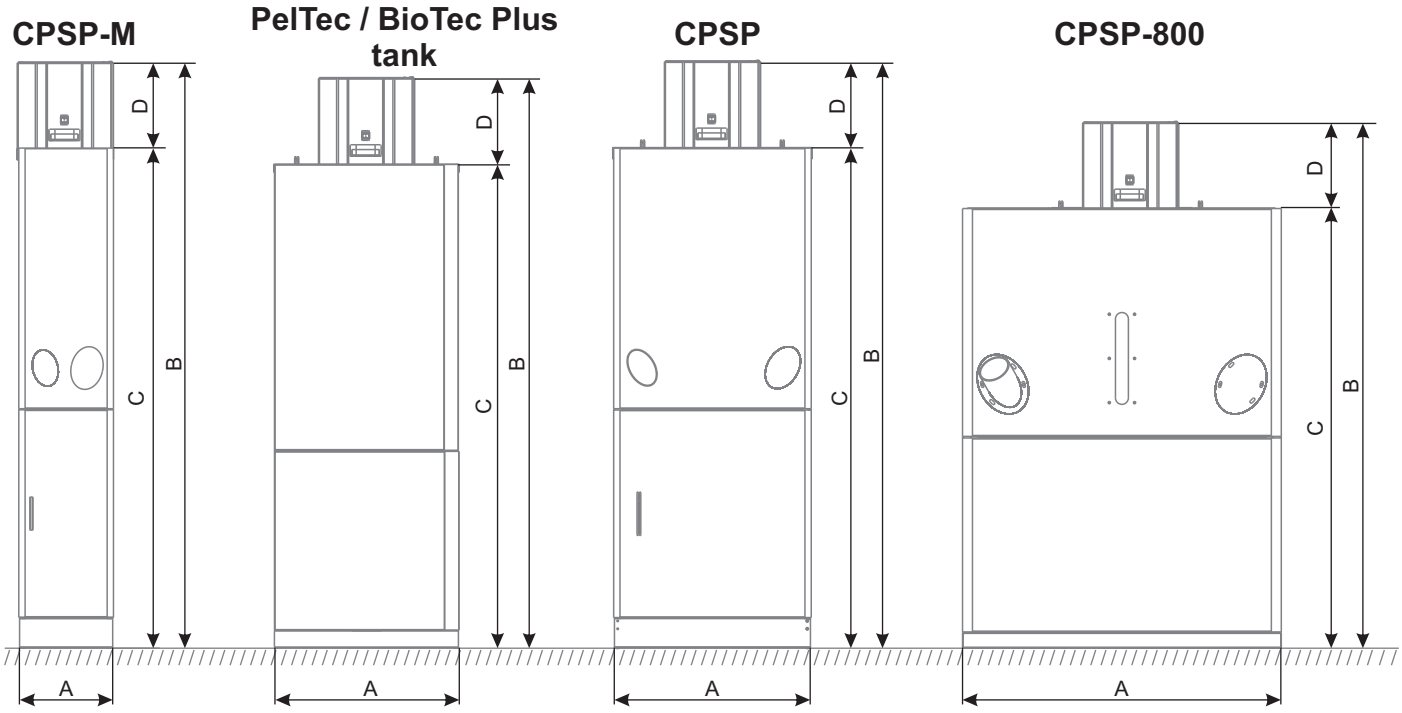
1. IN GENERAL

The purpose of the pellet suction system is for pellet systems with a power output until 90 kW in cases where the pellet tank is not situated close to the boiler and an automatic feeding system is demanded. By the help of flexible tubes with a maximum length up to 10 m in one direction, the pellet is being transported from a bigger tank to the pellet tank close to the boiler to insure a continous pellet provision (feeding). The pellet suction systems consists of a turbine which is mounted on top of the pellet tank situated close to the pellet boiler, of a pellet level sensor in the tank (close to the pellet boiler, the PelTec has already a built in pellet tank), of flexible tubes with earthing, maximum length up to 10 meters in one direction and maximum height difference from 2,5 to 5m depending upon the total tube length and the bigger pellet tank.The pellet suction system is controlled by the boiler regulation, which according to the fuel level sensor in the pellet tank and turbine and the set times of operation controls the suction system. The suction system can be connected with three different pellet tanks: pellet tank with mole, big pellet tank CentroPelet box and the pellet tank with the feeder screw. The system is tested for the transport of wood pellets with a diameter of 6 mm, manufactured according to the DINplus norm or EnplusA1 with a maximum dust content < 0,7 %.

1.1 TEHNICAL DATA

PELLET TANK		CPSP-M	PelTec	CPSP 370	CPSP 800
Pellet tank volume	lit.	230	340	370	800
Dimension A	mm	300	585	625	1010
Dimension B	mm	1860	1805	1860	1670
Dimension C	mm	1580	1530	1590	1395
Dimension D	mm	275	275	275	275
Connections	DN	50			
Max. electrical power	W	1630			
Pellet feeding quantity (mole)	kg/h	300*			
Pellet feeding quantity (from the big tank)	kg/h	700*			
Pellet feeding quantity (feeder screw)	kg/h	450*			

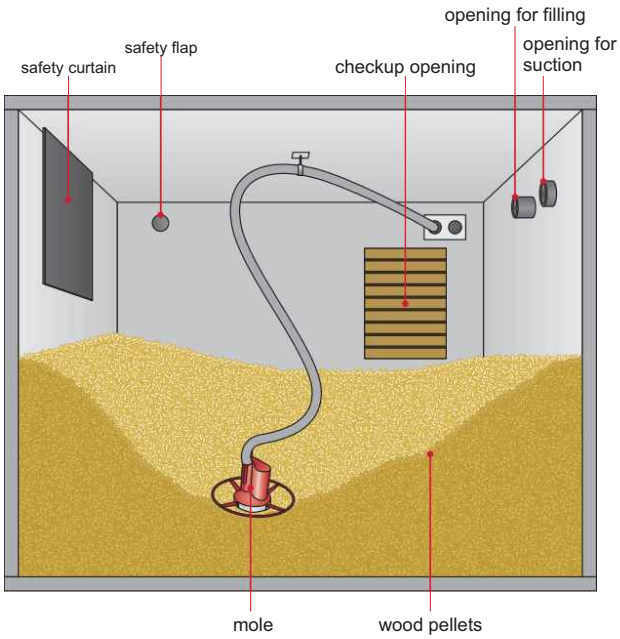
* The pellet feeding quantity depends upon the flexible tube length, the number and radius of the curves, the heightdifference and may deviate from the listed value.

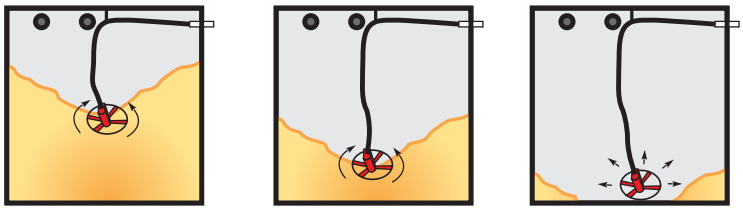


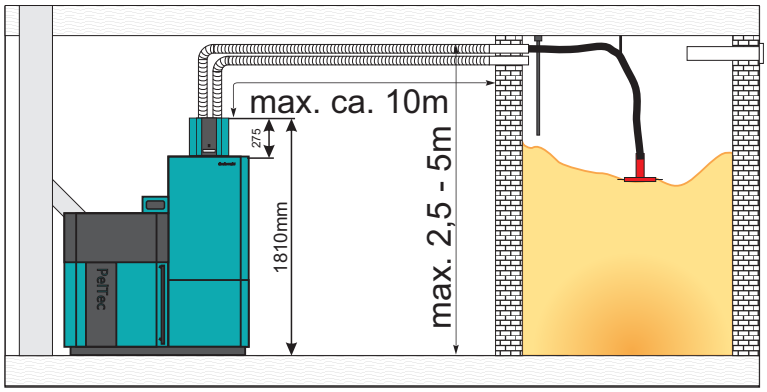
1.2 CONFIGURATION

1.2.1 CONFIGURATION: CVT + Mole

The mole is an innovative technology for wood pellet feeding from a pellet tank towards an intermediate boiler pellet tank. Classical wood pellet feeding systems feed the pellet from the tank's bottom (the pellets move down) while the mole takes the pellets always from the upper tank part (the pellets do not move , the mole is moving). The classical pellet feeding systems must have slantwise sheets which take precious room for storaging while the mole uses nearly the complete tank volume (the rest is max. 10 %) The mole is used for tanks with a ground plan until maximum 2,5 x 2,5 m, tank height from 18,8 to 2,5 m. In such dimensions the tank may be shaped circular or rectangular. When having bigger ground plan surfaces in the storage it is needed by help of sheets under an inclination of 45 degrees to adjust the surface in the room to the maximum allowed. The storage may be filled until maximum 30 cm below the ceiling. Recommendation is to use pellet trucks when filling the storage whereby the storage will be filled uniformly with the lowest dust percentage (it is need to install the set with tubes for the filling of pellets into the storage and the rubber protection curtain). The storage must be dry with a mounted checkup opening (minimum 80 x 80 cm) through which it is possible to put the mole into the storage filling position and to clean the storage from dust. The storage must be airtight due to the return of the dust from the turbine. If the storage is not airtight on the return tube it is needed to mount a dust bag. Maximum total (flow and return) pellet feeding tube length is 20 m + 5 m in the storage (distance from the storage to the boiler is about 10 m feeding tube length), maximum height difference (H) of the feeding tubes depends upon the total tube length (L) (flow and return) : L = 15 m , H = 5 m or L = 20 m , H = 2,5 m. The height difference for the feeding system greater than 3 m must be interrupted with minimum 1 m horizontal positioned tubes. The tubes must be placed with maximum possible arcs. The tube bending radius must be minimum 30 cm. As an additional equipment it is possible to order a manual mole lifting system in the storage by help of sheaves. The mole pellet suction system has the purpose to be used for pellet boilers systems up to 90 kW of power. The system is tested to transport wood pellets with 6 mm diameter manufactured according to norm DINplus or EnplusA1 with maximum dust content < 0,7 %.



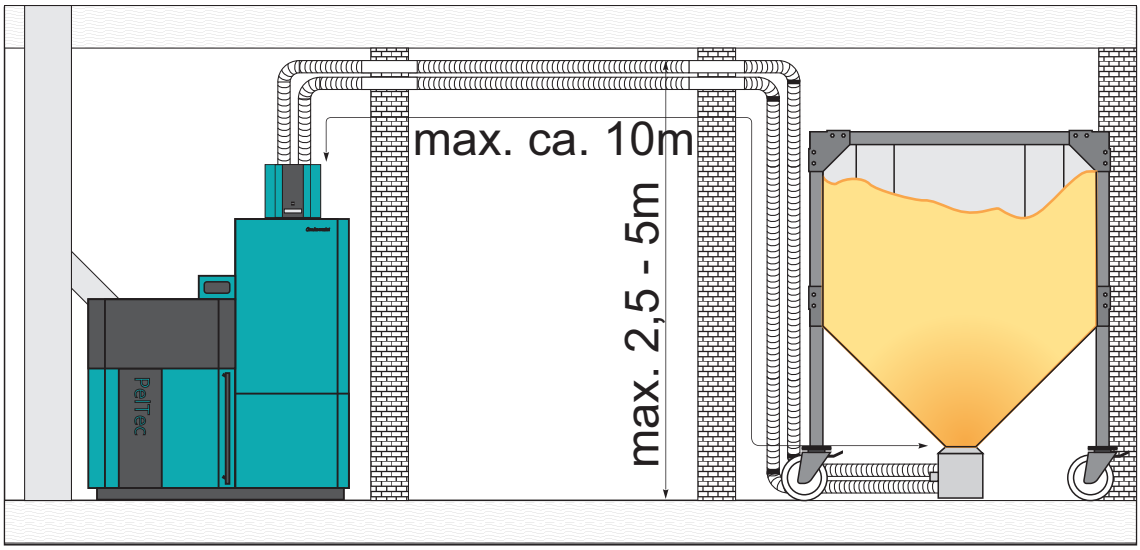




Mounting to: PelTec, PelTec-lambda, EKO-CK(B) P - Cm Pelet set, CentroPlus(-B) + Cm Pelet set, BioTec Plus.

1.2.2 CONFIGURATION: CVT + CentroPelet Box

In wood pellet heating systems beside the boiler a pellet tank must be placed. Depending upon the boiler's power output and the wished operation autonomy, the pellet tank must sometimes have bigger dimensions which also requires bigger boiler rooms.
To solve the problem when having smaller boiler rooms which means a lack in pellet storaging beside the boiler and in order to increase the comfort when heating with pellets by help of the suction system from the big pellet tank towards the tank beside the boiler it is possible to transport the pellets to a distance of 10m flexible tube length. The tanks can have various volumes, CentroPeletbox 1,5 m^3, 2,7 m3, 3,4 m3 and 4,0 m3 with the built in box for the pellet suction system. When having boiler cascades it is possible to connect 4 turbines (suction systems) with one CentroPelet box which means that at the same time it is possible to feed with pellets 4 boilers. The distance between the CentroPelet box and the boiler may be maximum 10 m flexible pellet tube length. On the lower part of the CentroPelet box it is needed to mount the suction system box and to fasten on it the flow and return of the flexible tubes. The tanks can have following dimension: 1,5 m^3, 2 ,7 m^3, 3,4 m^3 and 4 m^3 in which one after the other 900 kg, 1700 kg , 2200 kg and 2600 kg of pellets can be placed. The tanks can be filled with 1000 kg pellet jumbo bags and 15 kg pellet bags. Maximum total suction system tube length (flow and return) is 20 m (distance from the tank to the boiler around 10 m), maximum height difference of the feeding tubes (H) depends upon the total tube length (L) (flow and return): L = 15 m , H = 5 m or l = 20 m , H = 2,5 m. The height difference for the feeding system greater than 3 m must be interrupted with minimum 1 m horizontal positioned tubes. The tubes must be placed with maximum possible arcs. The tube bending radius must be minimum 30 cm. The pellet suction system out of the pellet tank has the purpose to be used for pellet boilers systems up to 90 kW of power. Maximum turbine operation time during a day is 5 hours. The system is tested to transport wood pellets with 6 mm diameter manufactured according to norm DINplus or EnplusA1 with maximum dust content < 0,7 %.

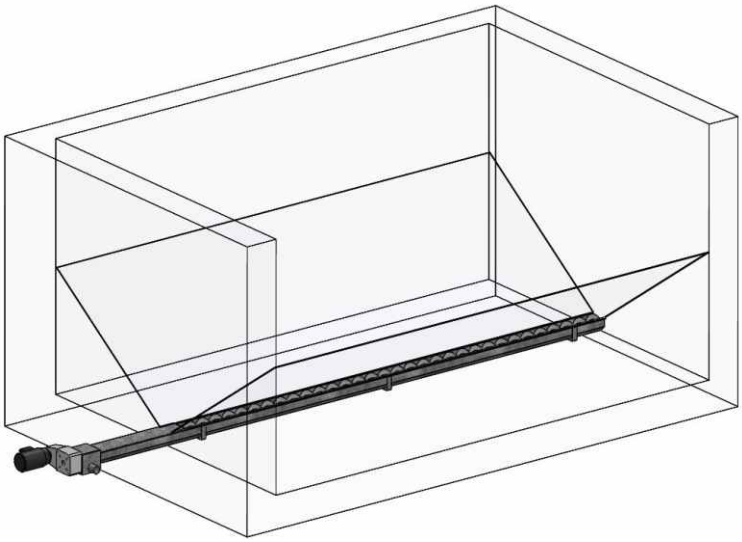


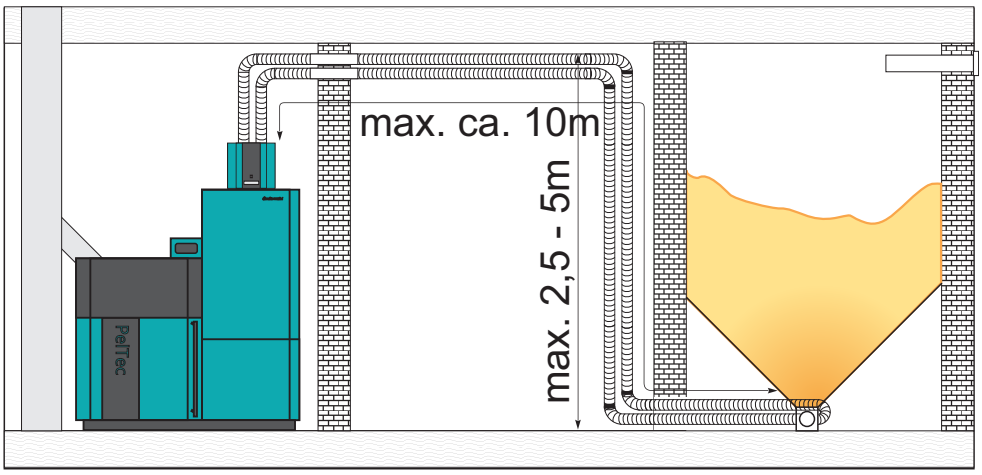
Mounting to: PelTec, PelTec-lambda, EKO-CK(B) P - Cm Pelet set, CentroPlus(-B) + Cm Pelet set, BioTec Plus.

1.2.2 CONFIGURARION: CVT + Feeder Screw

To solve the problem when having smaller boiler rooms which means a lack in pellet storaging beside the boiler and in order to increase the comfort when heating with pellets by help of the suction system from the room towards the tank beside the boiler it is possible to transport the pellets to a distance of 10 m flexible tube length. The pellet feeder screw length can have 2 m, 3 m, 4 m and 5 m and according to this it is needed to adjust the slopes in the room with an inclination of 45 degrees. The distance between the room and the boiler may be maximum 10 m flexible pellet tube length. In the pellet rrom it is needed to mount the pellet feeder srew with the box and the motor gear and the slope sides (angle 45 degrees) towards the feeder screw. The room can be filled with pellet trucks (it is need to install the set with tubes for the filling of pellets into the storage and the rubber protection curtain), jumbo bags or smaller bags. The feeder screw box has to be connected with the suction system flexible tubes. Maximum total suction system tube length (flow and return) is 20 m (distance from the tank to the boiler around 10 m), maximum height difference of the feeding tubes (H) depends upon the total tube length (L) (flow and return): L = 15 m, H = 5 m or l = 20 m, H = 2,5 m. The height difference for the feeding system greater than 3 m must be interrupted with minimum 1 m horizontal positioned tubes. The tubes must be placed with maximum possible arcs. The tube bending radius must be minimum 30 cm. The pellet suction system out of the pellet tank has the purpose to be used for pellet boilers systems up to 90 kW of power. Maximum turbine operation time during a day is 5 hours. The system is tested to transport wood pellets with 6 mm diameter manufactured according to norm DINplus or EnplusA1 with maximum dust content < 0,7 %.

Feeder screw	
length	motor with gearbox
2 m	0,18 kW
3 m	0,18 kW
4 m	0,18 kW
5 m	0,18 kW

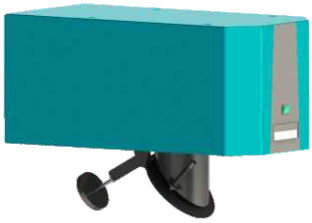




Mounting to: PelTec, PelTec-lambda, EKO-CK(B) P - Cm Pelet set, CentroPlus(-B) + Cm Pelet set, BioTec Plus.

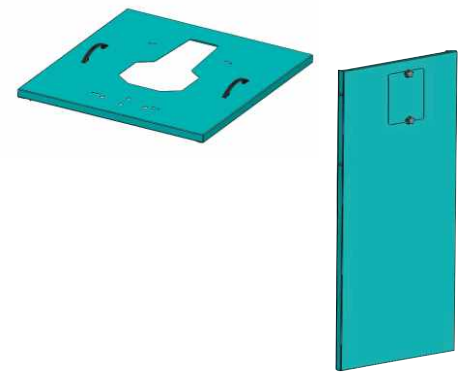
1.3 DELIVERY CONTENT- CVT

Turbine with flap and control.

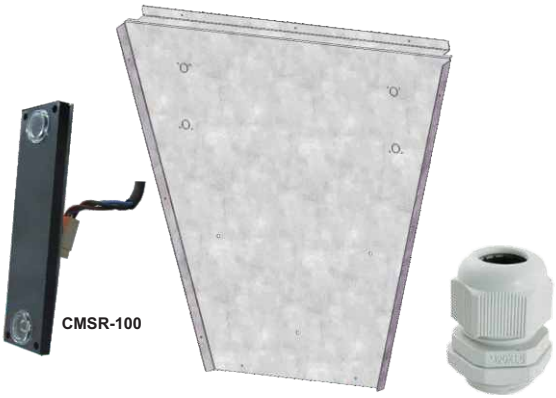


20m flexible antistatic tubes for pellet transportation with a earthing wire, clamps and rubbed power cable.

*Lid for the intermediate tank with the position to fast the turbine and lateral side of the intermediate tank with a checkup opening.



** Back inner side with perforated holes for fuel level sensor installation and plastic cable gland Fuel level sensor CMSR-100.



* The intermediate tank and the lateral side differ upon the type of the pellet tank (PelTec / BioTec Plus tank, CPSP-M, CPSP, CPSP-800).

** Inluded only with CPSP-M, CPSP, CPSP-800).

1.3.1 DELIVERY CONTENT (CONFIGURATION: CVT + MOLE)

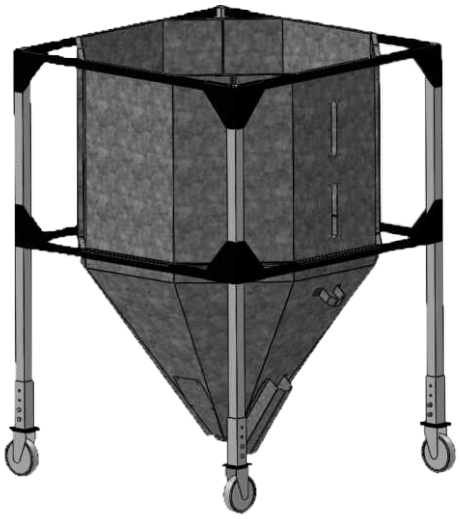
Mole with electric drive, 5 m flexible antistatic tubes for pellet transportation , rubbed power cable Connector Ip 67. Breakthrough (insertation) through the storage wall with 2 connections DN 50 for the suction and return tube - for storage walls thick up to 24 cm. Small material (screws, clamps, ...)

Picture: Mole content

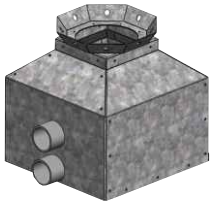
1.3.2 DELIVERY CONTENT (CONFIGURATION: CVT + CentroPelet Box)

Picture: CentroPelet Box content

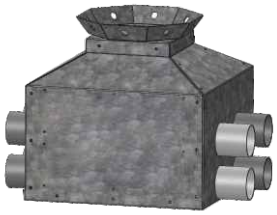
Big pellet tank CentroPelet Box



Box for the pellet suction system
Small material (screws, ...)



Or

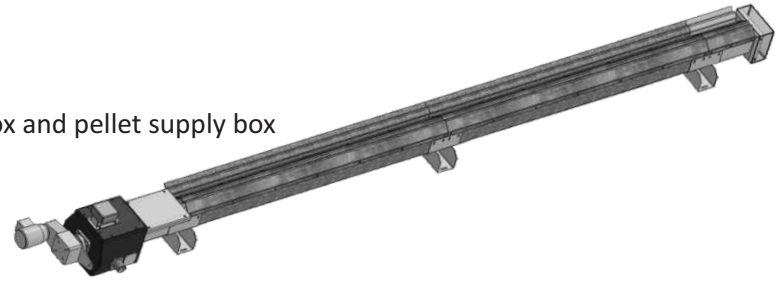


Box for the pellet suction system for up to 4 turbines

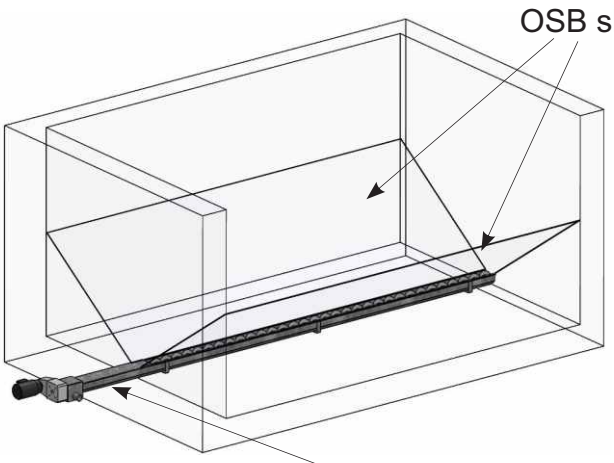
1.3.3 DELIVERY CONTENT (CONFIGURATION: CVT + Feeder Screw)

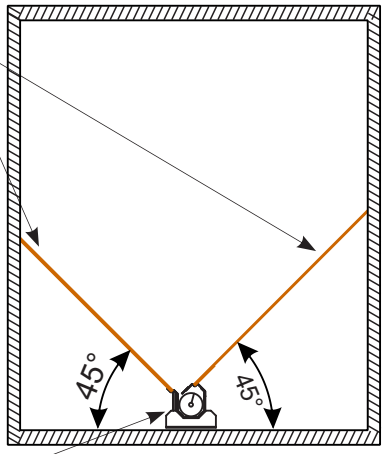
Picture: Feeder screw content

Feeder screw with gearbox and pellet supply box



1.3.3.1. MOUNTING FEEDER SCREW IN THE PELLET STORAGE ROOM





2. INSTALLATION

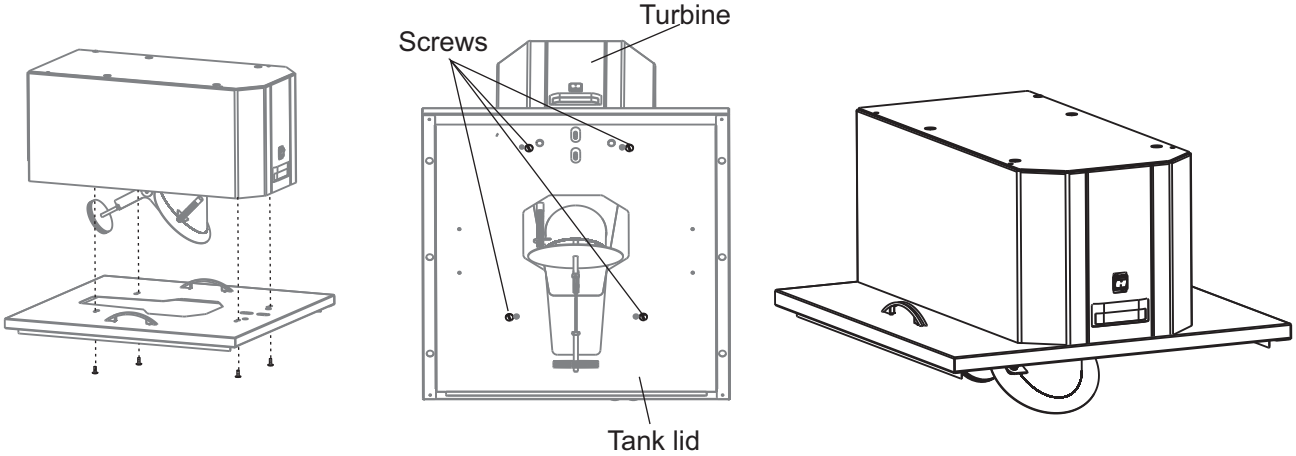
PelTec / BioTec Plus &

EKO-CK(B)P / CentroPlus + Cm Pelet-set

PROTECTIVE GLOVES ARE OBLIGATORY!!!

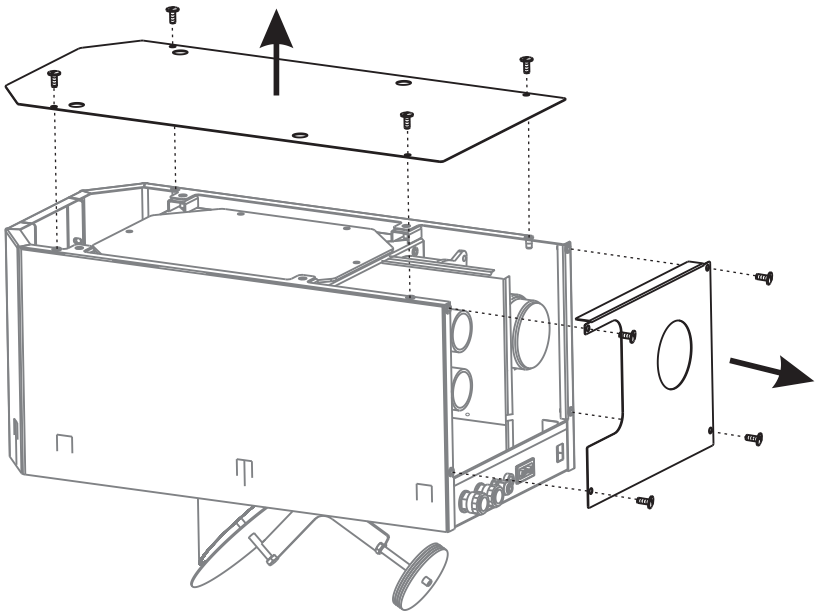
2.1 PLACEMENT OF THE TURBINE ON TOP OF THE TANK LID

The upper tank lid is needed to be fastened with 4 screws on the lower side as shown on the pictures below (the tank lid may differ depending upon the tank type).



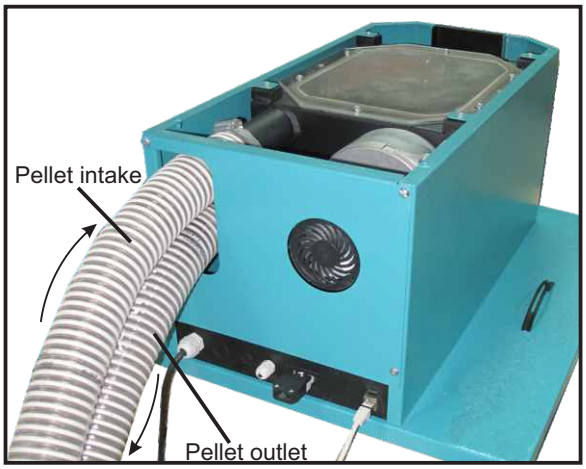
2.2 CONNECTION AND EARTHING OF THE TUBES ON THE TURBINE

In order to be able to connect the tubes on the turbine it first necessary to take off the rear and upper turbine lid.Unscrew the screws and take off the rear and upper turbine lid as shown on the picture below.

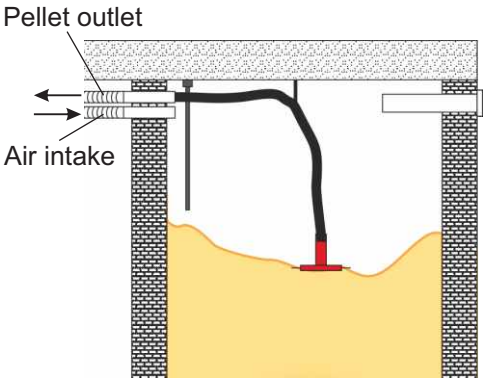


The tubes have to be fastened with the clamps (1). After the tubes are fastened it is necessarily to connect the earthing by help of the wire which is placed in the tubes (2), it is needed to ground every tube separately. The earthing is connected with the factory prepared yellow - green wires. The upper tube is the pellet intake into the turbine tank. The lower tube on the turbine is being used for the air outlet (and dust) and has to be connected or with the other (second) connection on the big tank or with a dust bag.

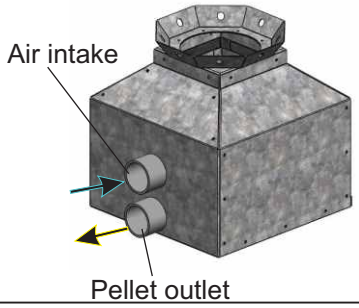
Earthing wires



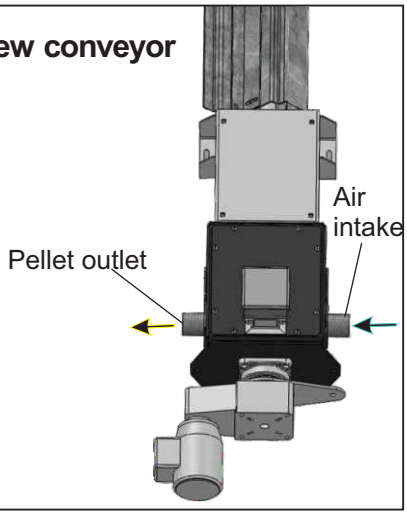
Mole supply



CentroPelet Box



Screw conveyor



3. ELECTRIC CONNECTION

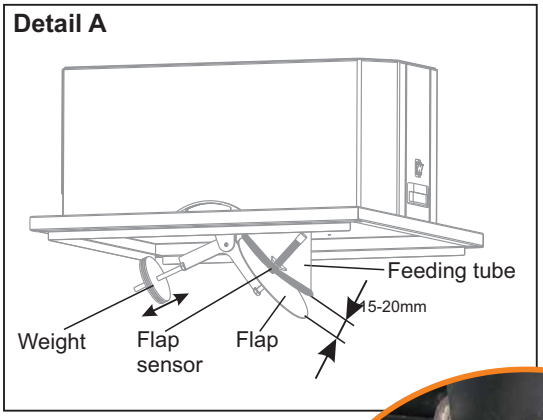
Before any work on the boiler, electric energy must be switched off.

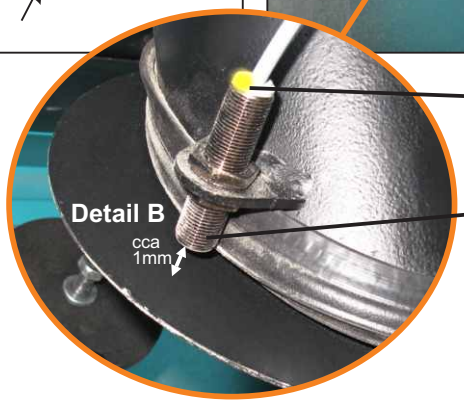
3.1 POWER CONNECTING OF THE TURBINE

The turbine with the flap is factory wired and it is needed to connect ot with the power 230V/50 Hz (1). The turbine must be connected with the PelTec / BioTec Plus boiler control (PelTec / BioTec Plus, Cm Pelet set) by the UTP cable (2). When using the mole for pellet transportation out of the room / storage or when using the transportation from a room by the feeder screw it is needed to additionaly connect the mole / feeder screw with the turbine with a connector (3). In case of pellet feeding out of the big CentroPelet box tank this connector is not being used.

3.2 FLAP AND INDUCTIVE FLAP SENSOR

The flap and the flap sensor are factory preset.When finishing the installation of the suction system it is needed to check the flap and sensor settings to avoid an irregular operation of the system.
To insure a correct operation of the suction system, in the state of immobility the opening between the flap and the feeding tube must be 15-20 mm (detail A). If the space is greater or smaller than required, the space can be set by moving the weights.





Light indicator

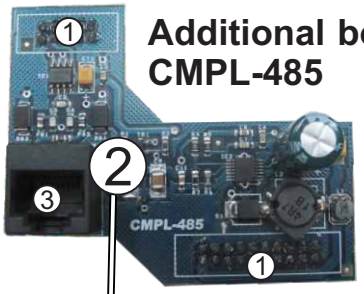
Flap sensor

The flap sensor must be installed on the side of the checkup opening on the lateral side of the cover (it is factory installed on the right side, if necessary it can be moved onto the left side by unscrewing the nuts). On top of the sensor is a light indicator which when it lights signals the tightness of the flap.The sensor distance from the flap, during the turbine operation, must be about 1 mm (detail B). When the turbine operates, the light indicator must be switched on in order to insure vaccum in the system and a correct operation of the control.

EKO-CK(B) P / CentroPlus + Cm Pelet-set

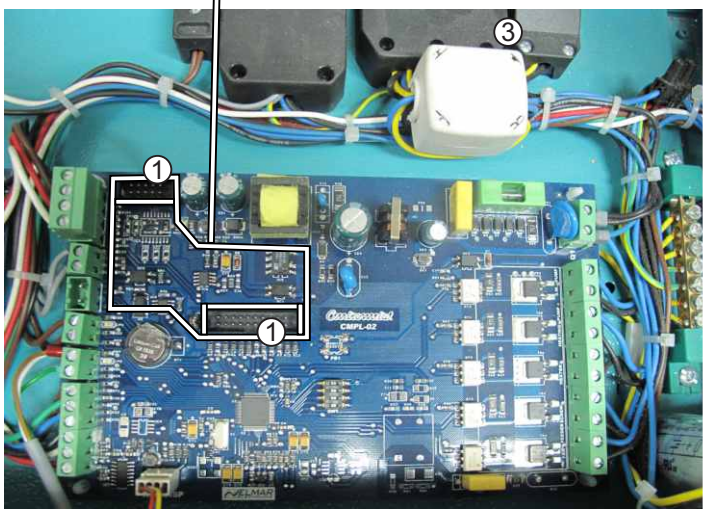
The installation of the additional electric board CMPL - 485, fuel level sensor CMSR - 100 in the tank (CPSP - M, CPSP - 370, CPSP - 800)

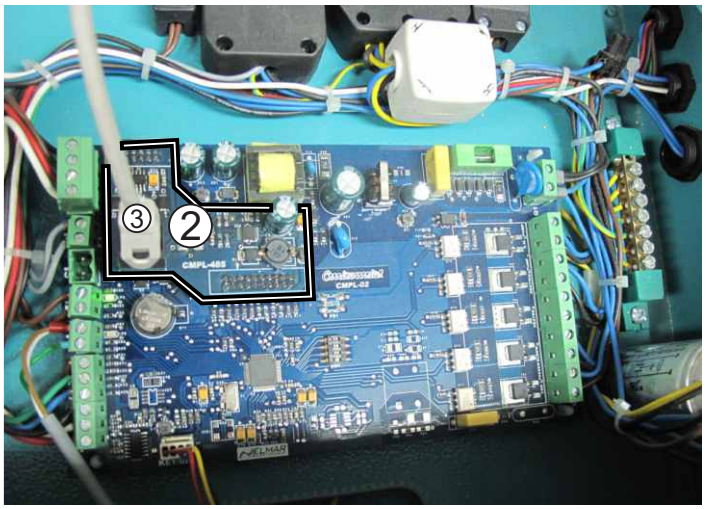
The CPREG control from the Cm Pelet - set must have the software (14 – 50 kW) = 02:82 F2, (60 - 90 kW) = 02:83 L2



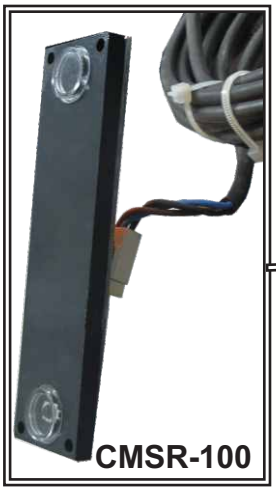
Additional board CMPL-485

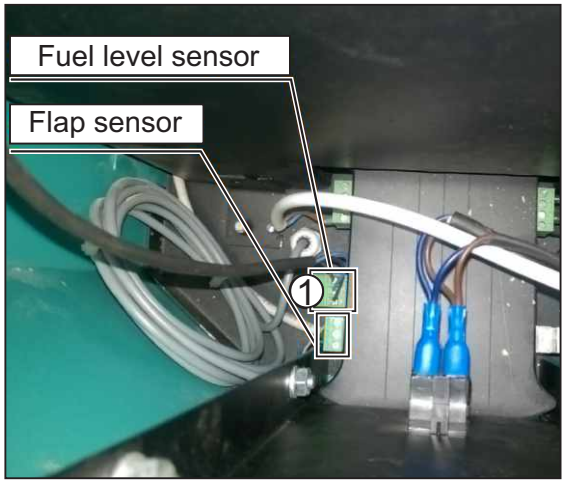
On the connectors of the mother board (1) the additional board CMPL - 485 (2) must be installed on which the UTP connector from the suction system (3) is connected.



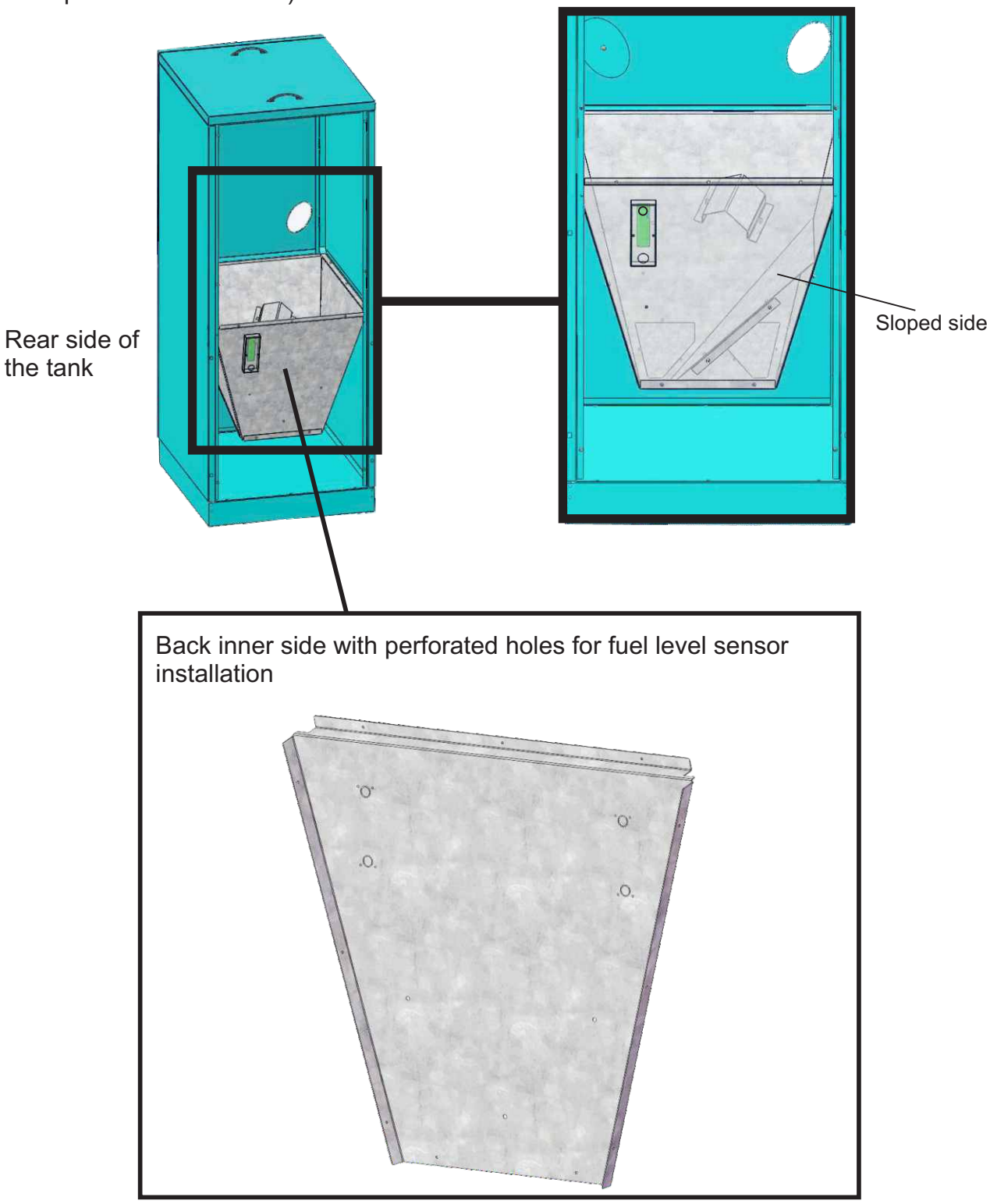


In the pellet tank (CPSP-M, CPSP-370, CPSP-800) the fuel level sensor CMSR-100 needs to be mounted (is delivered back inner side with perforated holes for fuel level sensor installation). Fuel level sensor must be installed from left or right side of pellet tank (perforated holes) depend about position and direction of feeder screw installation.
The fuel level sensor is needed to be connected with the corresponding connector on the turbine (1).





Pellet sensor CMSR-100 is placed 80mm from the left or right edge of the tank depending on the screw transporter orientation and angled side of tank (sensor must be placed on the oposite side of the sloped side of the tank.)

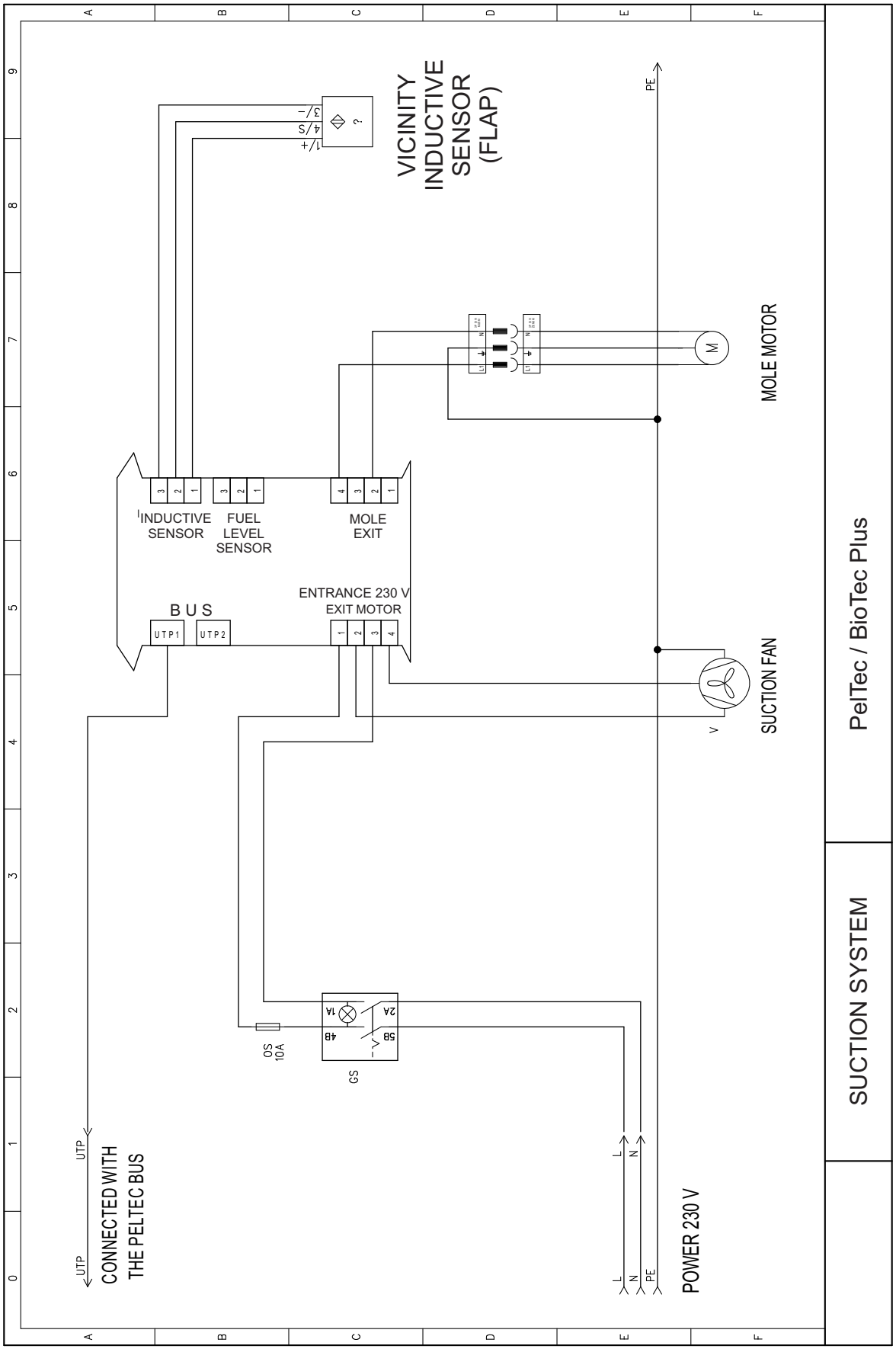


On the rear side of the pellet tank is necessary to drill a hole Ø13mm and install a plastic cable gland PG-7 through which goes cable of the sensor CMSR-100.

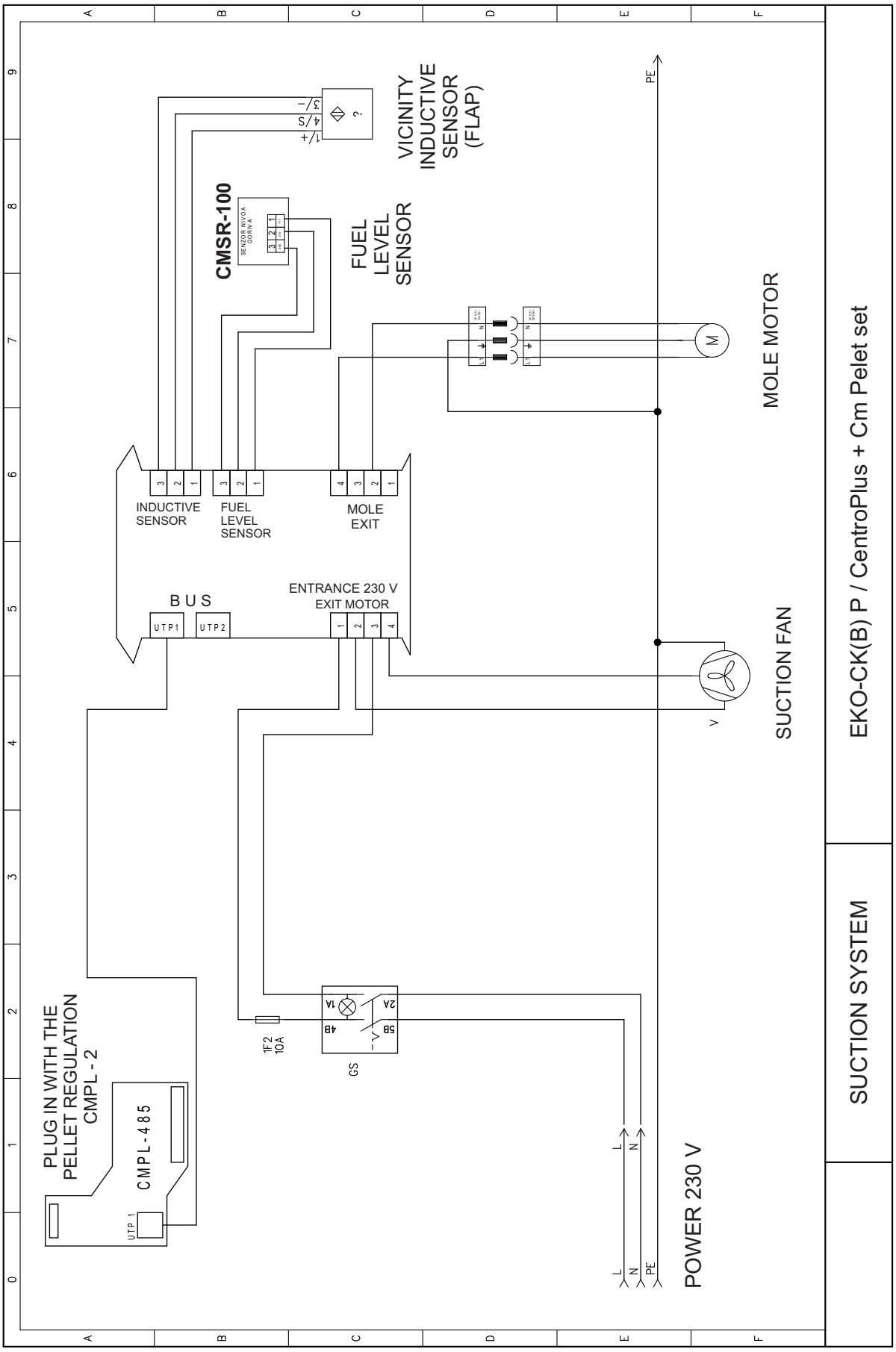
Plastic cable gland (PG-7)

3.3 ELECTRIC SCHEME

PelTec / BioTec Plus



EKO-CK(B) P / CentroPlus + Cm Pelet-set

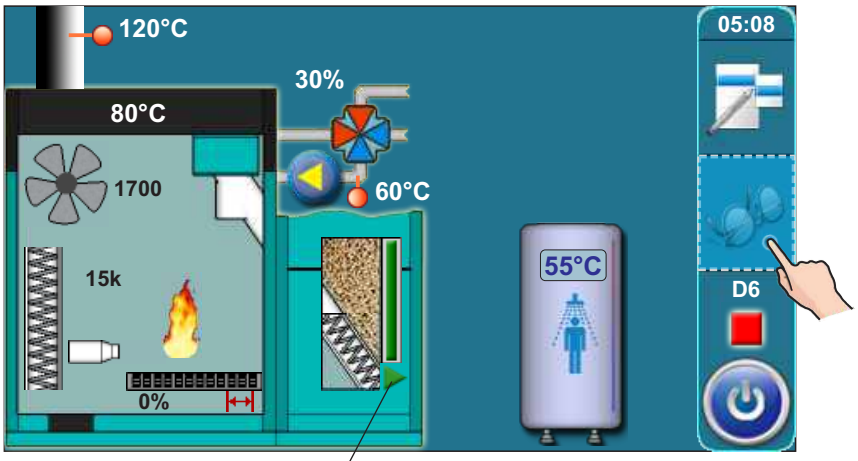


4. MANAGING / DIRECTING

⚠	**Boiler 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.**

PelTec / BioTec Plus

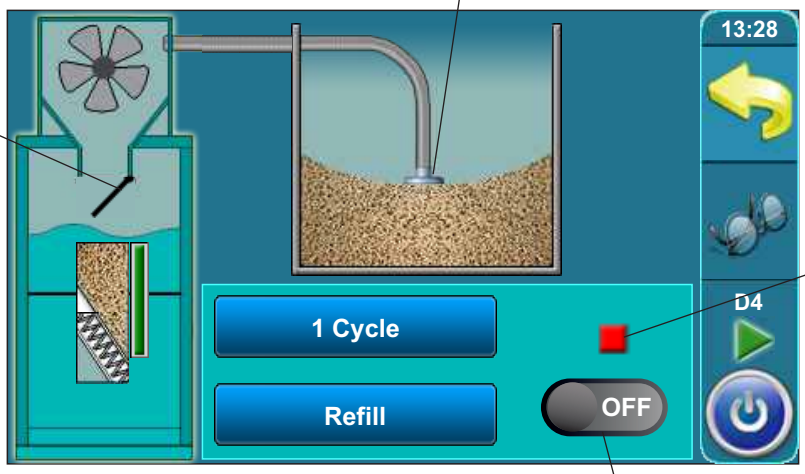
After configurating the pellet suction system, on the main page under the pellet sensor symbol appears a new indicator which shows if the suction system is in operation or not. During the operation of the suction system the indicator ▶ appears and when the system is still the symbol ■ shows up. If the suction system is switched on but is not in operation for the moment as the pellet tank is filled on the main screen the symbol ▌▌ will show up. To open a detailed viewit is necessary to press the key .



operation indicator
of the suction system

pellet feeding type
(mole, tank, feeder screw)

turbine flap
with sensor



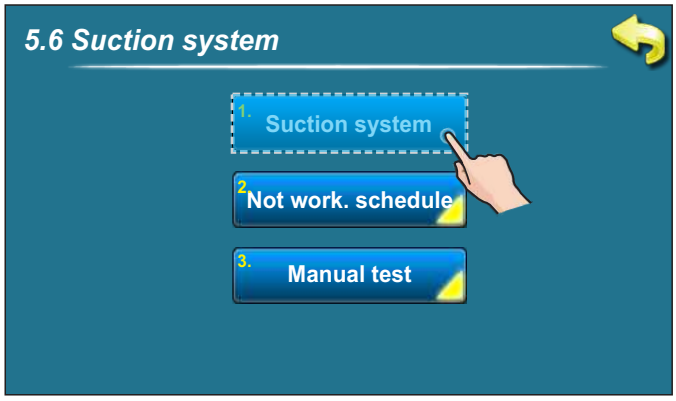
operation indicator

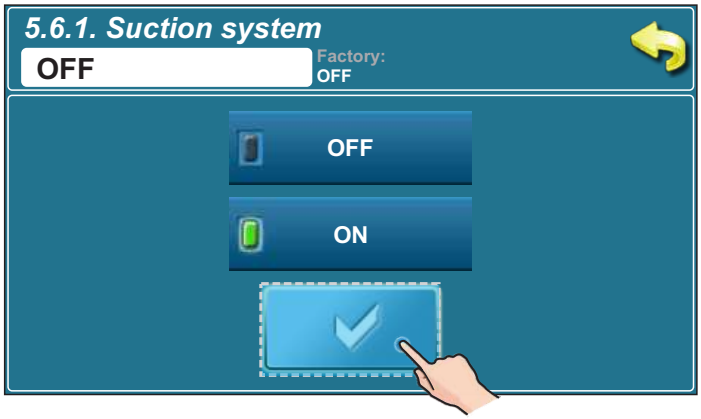
on/off key

4.1 USER MENU

The user can manage the operation of the suction system in the menu „OPERATION MODE„ > „SUCTION SYSTEM“

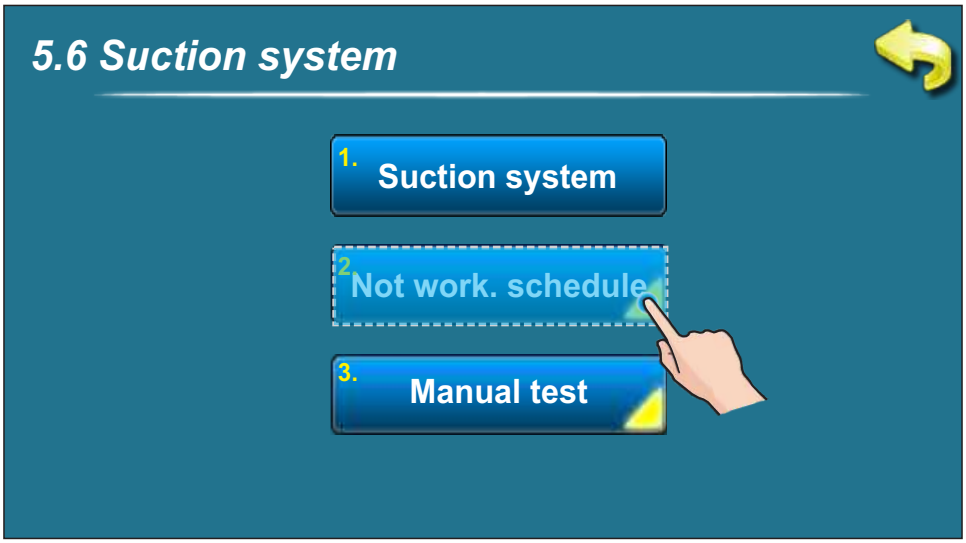
3.1.1 SUCTION SYSTEM ON/OFF



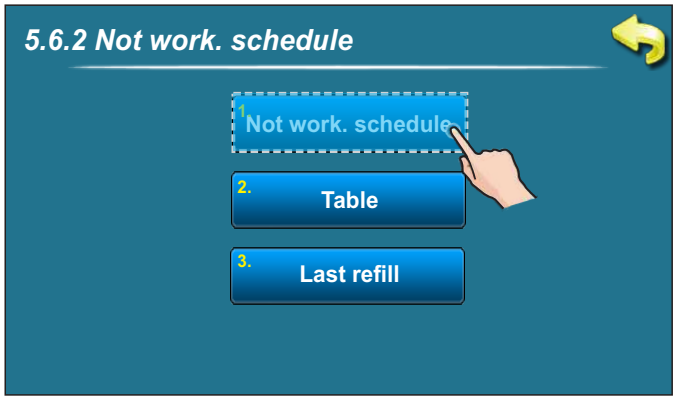


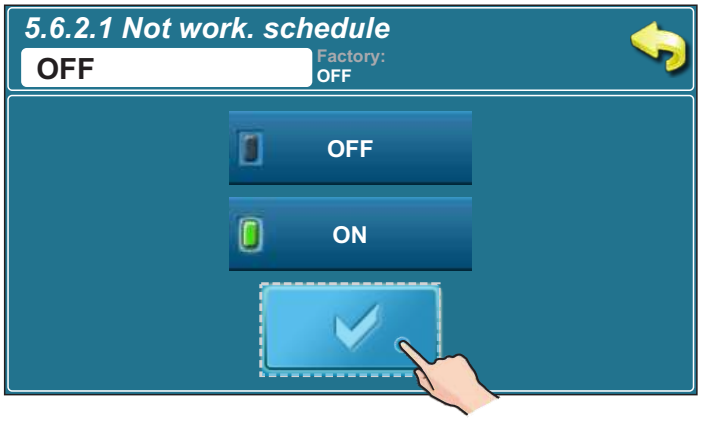
Possible selection: - factory set : **off**
- off, on

This option allows the off/on operation mode of the pellet suction system.



4.1.2 NOW WORK SCHEDULE ON/OFF

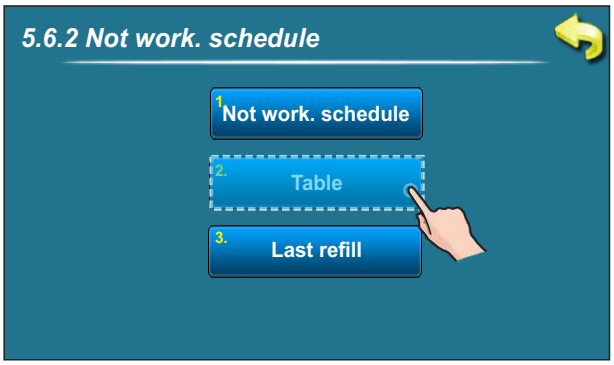


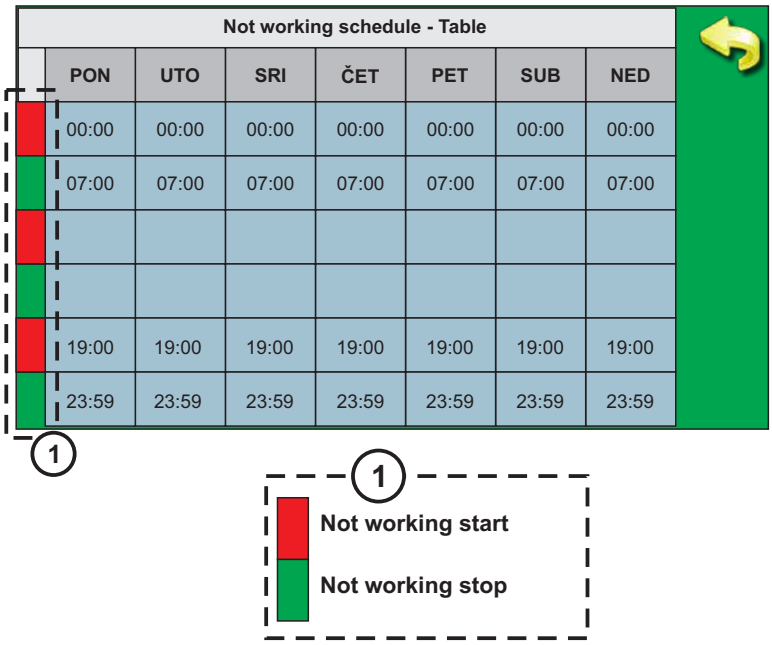


Possible selection: - factory set : **off**
- off, on

Not working schedule allows the prohibition of the suction system operation (as an example, during the night to prevent noises). When this option is switched on, the suction system will not operate during times set in the table (see point 3.1.3 „ Table „).

4.1.3 TABLE (NOT WORK SCHEDULE OF THE SUCTION SYSTEM)

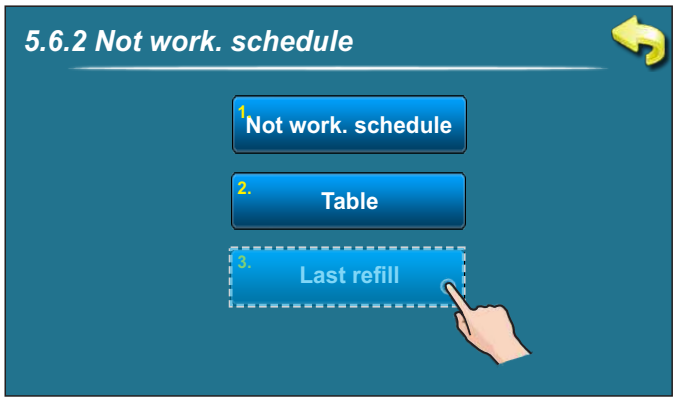


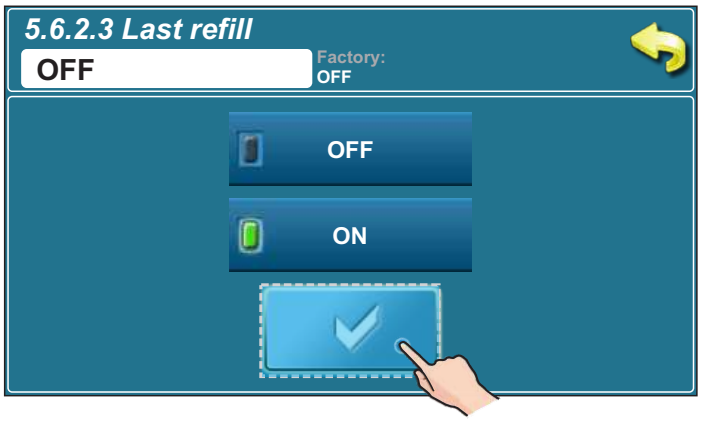


	PON	UTO	SRI	ČET	PET	SUB	NED
	00:00	00:00	00:00	00:00	00:00	00:00	00:00
	07:00	07:00	07:00	07:00	07:00	07:00	07:00
	19:00	19:00	19:00	19:00	19:00	19:00	19:00
	23:59	23:59	23:59	23:59	23:59	23:59	23:59

According to the table shown above, on Monday at 00:00 hours starts the prohibition of the suction system operation until 07:00 hours when the prohibition stops. It means that the suction system will not operate on Monday from 00.00 hours until 07:00 hours. At 19:00 hours the operation prohibition starts again which lasts until 23:59. For each day during a week it is possible to set a different not working schedule, in this case for all days during the week the same schedule is set.

4.1.4 LAST REFILL



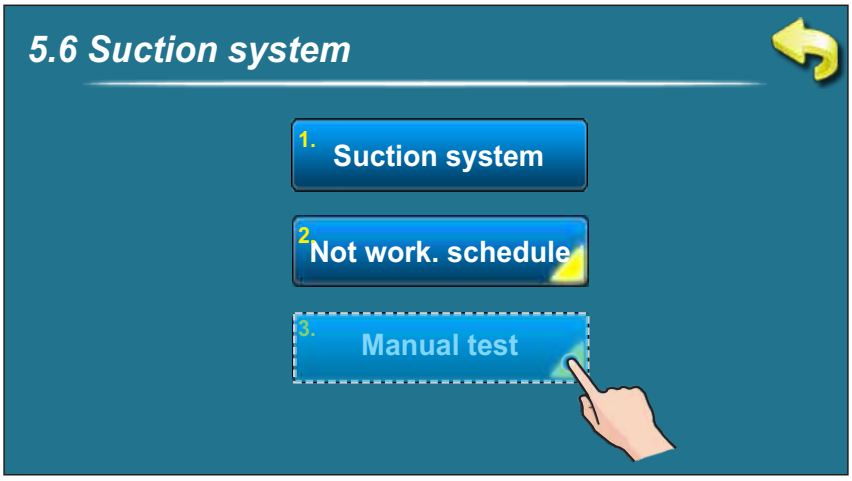


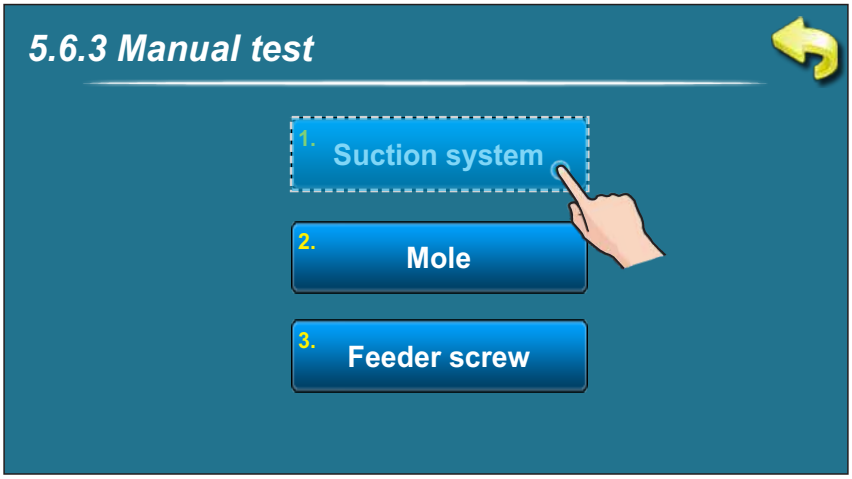
Possible selection: - factory set : **off**
- off, on

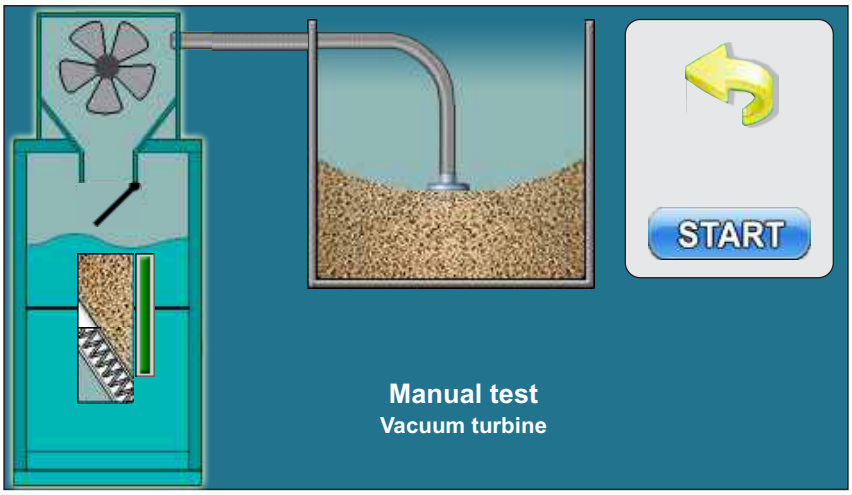
If this option is switched on, during the time when the operation prohibition is switched on, the suction system will one more time fill up the pellet tank to the top in order to avoid pellet shortage during the time when the prohibition of the suction system operation iz switched on.

4.1.5 MANUAL TEST

The manual test is a option which allows to test parts of the suction system to check their technical accuracy.It is possible to separately test the suction system turbine, the mole/feeder screw in case this elements are used as pellet feeding means. When entering the menu for manual test, it is necessary to press the key „ START“ to check the operation.







EKO-CK(B) P / CentroPlus + Cm Pelet-set

In order to enter the menu PE10 it is necessary to reach PR10 by the key SET, then press + and afterwards SET SET again. Now you have entered the menu Pr10. The parameters are set in the same way as when setting the boiler's temperature.

Pr10		
Parametar	**Term**	**Description**
rF01	Suction system ON/OFF	This option allows the user the ON/OFF operation of the pellet suction system.
rF02	Prohibition table ON/OFF	Not working schedule is an option which allows the prohibition of the suction system operation (for example during the night to prevent noises. When this option is switched on the suction system will not operate during times which are set in the table).
rF03	Prohibition table	In this option it is possible to set the not working table of the pellet suction system.
rF04	Last refill ON/OFF	It this option is switched on, during the time when the prohibited operation is being switched on, the suction system will one more time fill up the pellet tank to the top in order to prevent pellet shortage during the time when the suction system operation is prohibited (the prohibition is switched on).
rF05	Manual test	Key − Manual test of the mole operation Key + Manual test of the suction system operation **Remark :** Parameter rF01 must be set on OFF
rF06	Manual start 1 cycle/1 filling	Key − Manual start of the 1st cycle filling Key + Manual start of the complete tank filling **Remark:** Parameter rF01 must be set on ON.

Remark :

- When you enter the manual test , the lights of the pumps mark the sensor condition
- When there is a need (request) for the suction system operation , the LED light beside error symbol is flashing (when a real error appears, the symbol lights and on the screen the error is being written).
- When the error E12 appears (no fueč in the big tank/room) , PR10 automatically shuts off and after refilling the big tank it is necessary to start the suction system.

THE ACCESS AND DISPLAY OF THE MENU PR10 IS POSSIBLE AFTER CONFIGURATING THE SUCTION SYSTEM IN THE SERVICE MENU UNDER PIN.

5. MAINTERANCE

PelTec / BioTec Plus &

EKO-CK(B) P / CentroPlus + Cm Pelet-set

Minimum once a year (or more often if the pellets contain more dust) it is needed to :

- Check and clean the net from dust in front of the fan (the net is visible through the pellet lid on the turbine tank)
- Check and clean the turbine tank from du st.
- Check the seals of the turbine tank plexi lid, the fan and the connections of the return and flow of the pellets.
- Check the flexible tubes if dust builds in them and if there are cracks on the tubes.

PROTECTIVE GLOVES ARE OBLIGATORY!!!

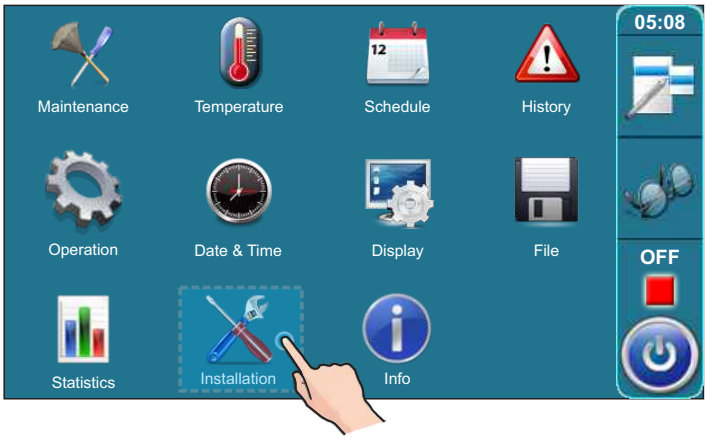
ONLY FOR AUTHORISED SERVICE PERSONAL

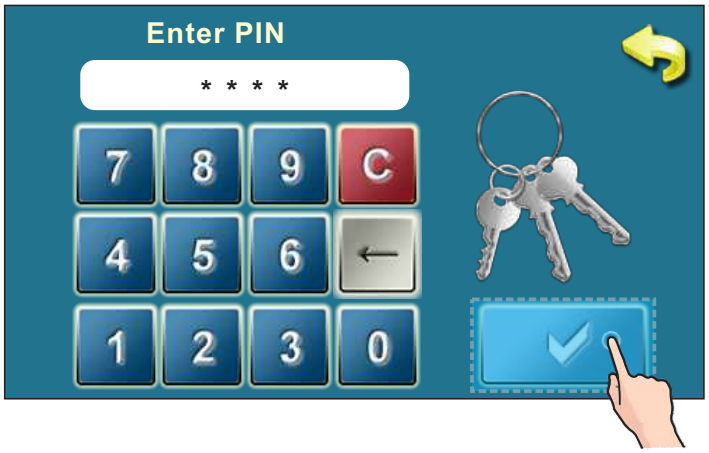
Next pages are assigned only to be used by authorized service personal.

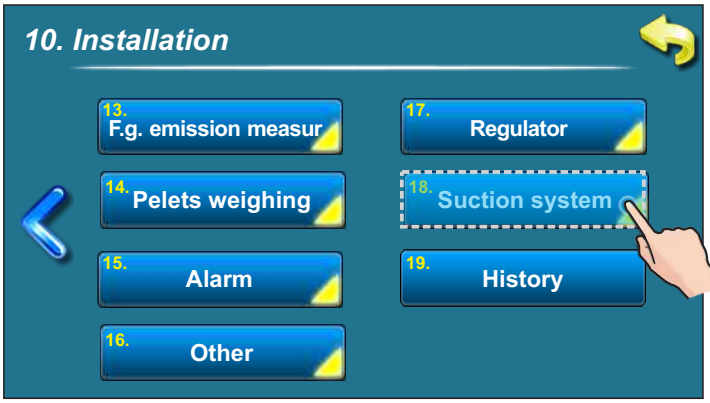
6. SERVICE MENU

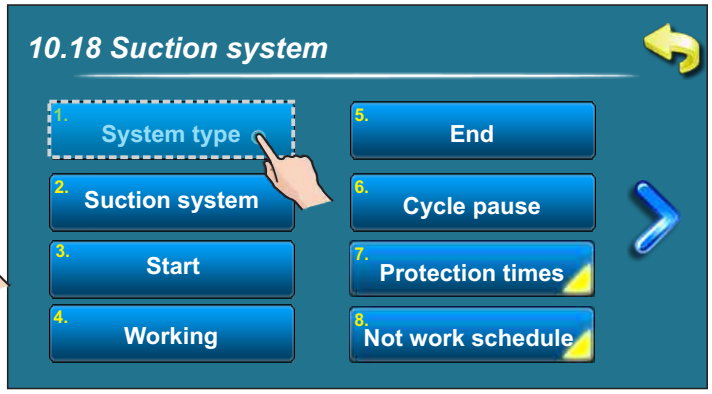
PelTec / BioTec Plus

In order to enable the operation of the suction system it is necessary to activate the suction system in the boiler regulation. This option can be switched off in the installation card. The access has only authorized personal (by entering the PIN).

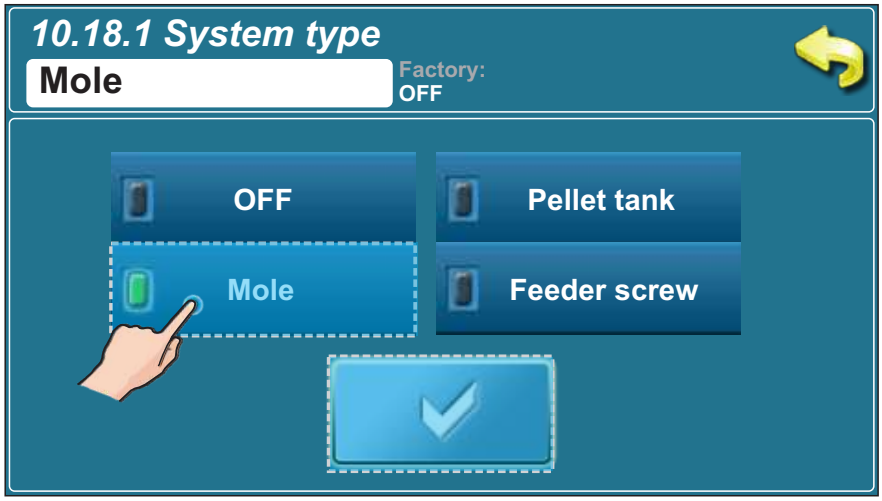




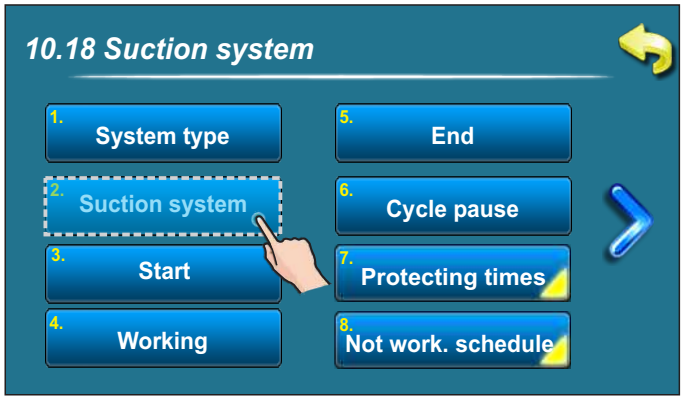


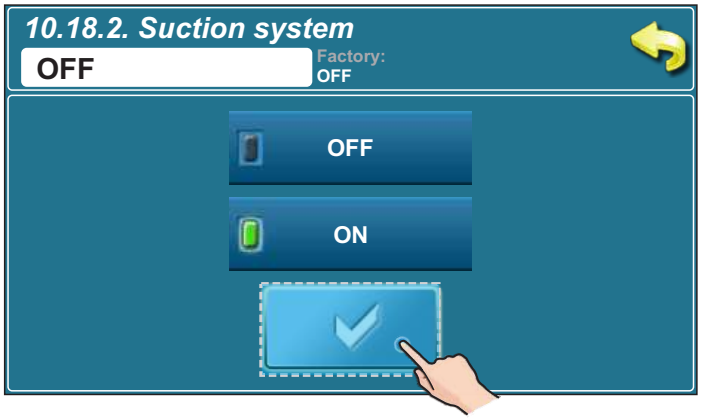


6.1 SYSTEM TYPE



6.2 PROHIBITION SCHEDULE ON/OFF

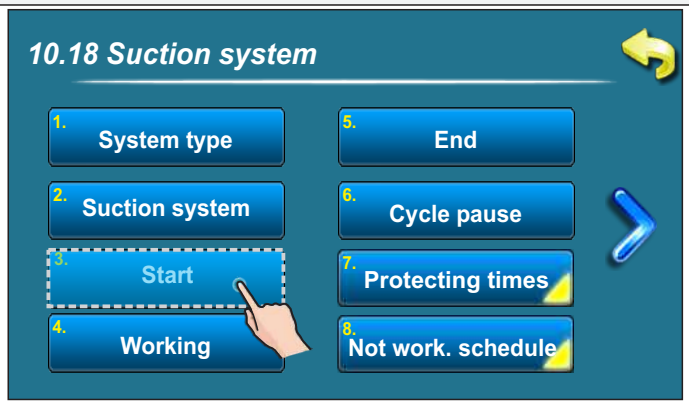


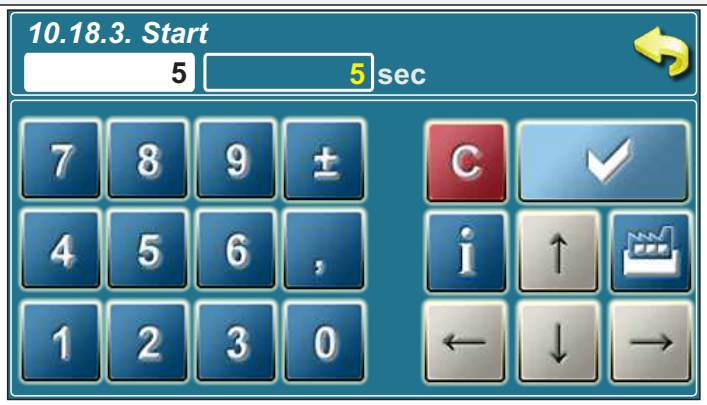


Possible selection: - Factory set : **OFF**
- OFF, ON

Ova opcija omogućava uključivanje/isključivanje rada vakuum dopune peleta.

6.3 START

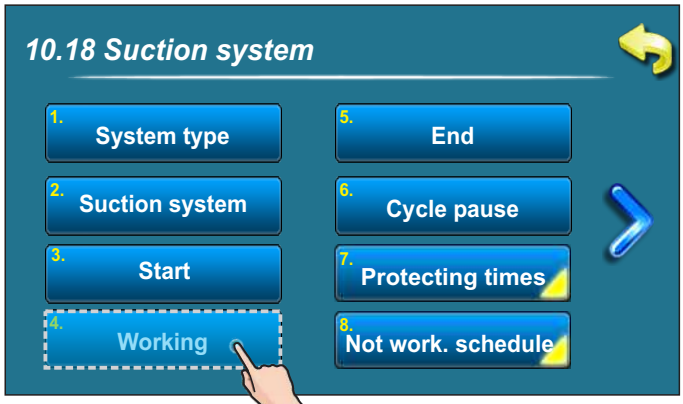


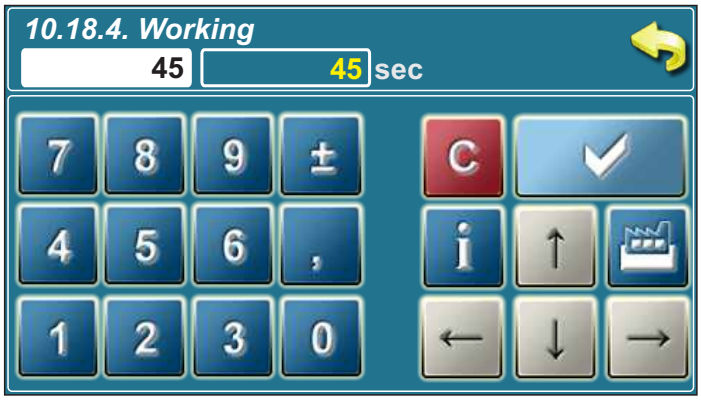


Possible selection: - Factory set: **5 sec**
- Minimum: 1 sec
- Maximum: 20 sec

This parameter defines how long will only the suction turbine work before the startof the mole or the feeder screw in the tank in order to empty the flexible tubes from pellets which are remaining inside from the last cycle.When selecting „ Tank „ parameter Start is set **on 1 sec.**

6.4 OPERATION

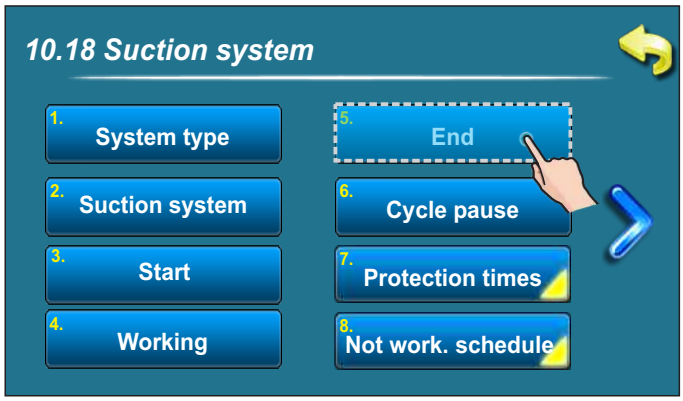




Possible section: - Factory set: **45 sec**
- Minimum: 1 sec
- Maximum: 360 sec

This parameter defines how long will the suction system work turbine together with the „ mole „or „ feeder screw„ . With this parameter we define how much the turbine tank will be filled. It is necessary to adjust that the turbine tank fills itself maximum together with the time START and END and that the turbine stops working when its tank is filled up.This parameter depends upon the flexible tubes length and the difference in height between the big tank (storage) and the pellet tank beside the boiler.

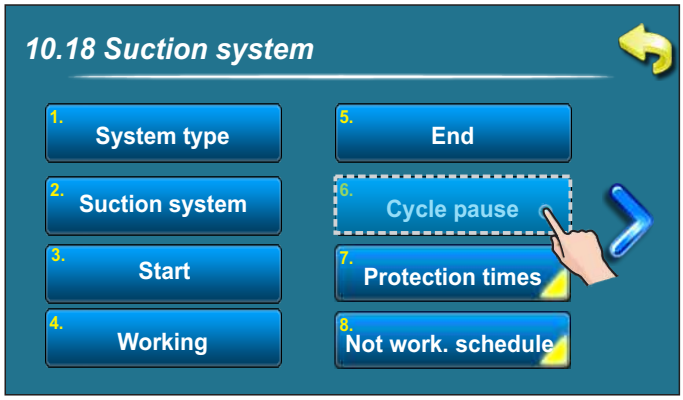
6.5 END

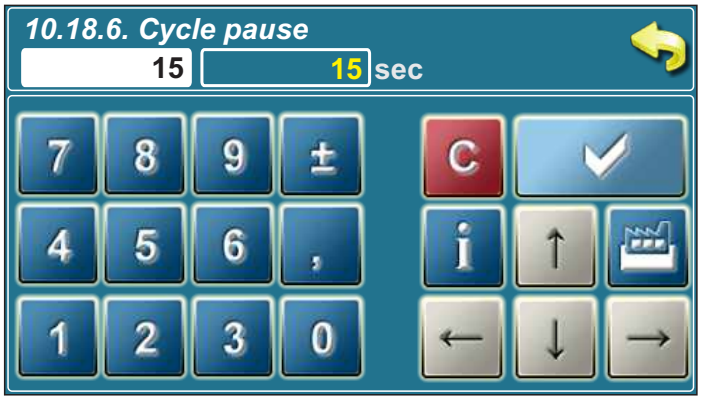


Possible selection: - Factory set: **10 sec**
- Minimum: 1 sec
- Maximum: 60 sec

This parameter defines how long only the turbine in the end of the filling cycle will work to empty the pellets which are remaining in the flexible tubes („ Mole „ or „ Feeder screw „ are not operating at that time.When selecting „ tank „ the parameter END is set on 1 sec.

6.6 CYCLE PUSE



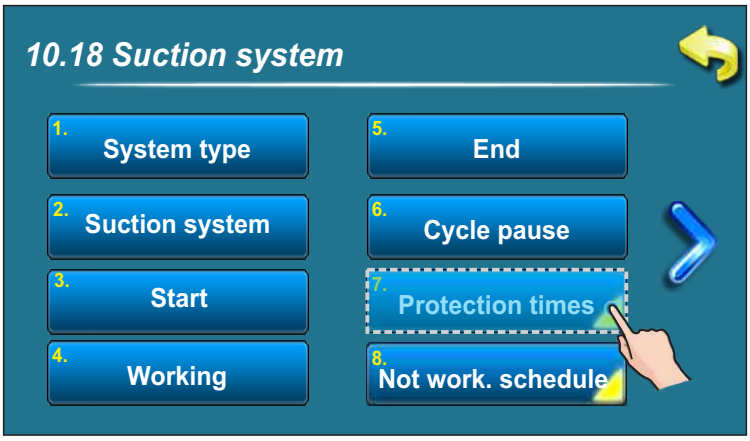


Possible selection: - Factory set: **15 sec**
- Minimum: 1 sec
- Maximum: 60 sec

This parameter defines the pause between two cycles of filling.This parameter has to be adjusted to enable a complete discharge of the turbine tank after one filling cycle and before the start of the next cycle.In case the new cycle starts to early there is a possibility that the flap cannot close due to remaining pellets.

6.7 PROTECTION TIMES

This parameter defines after how much time the suction system will stop operating if by some reason the tank by here defined conditions is not filled.

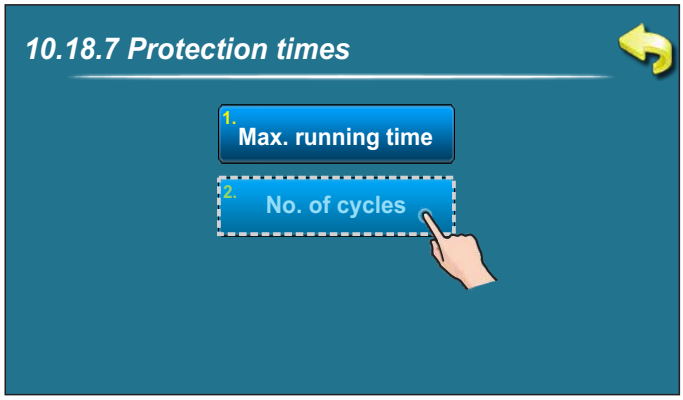


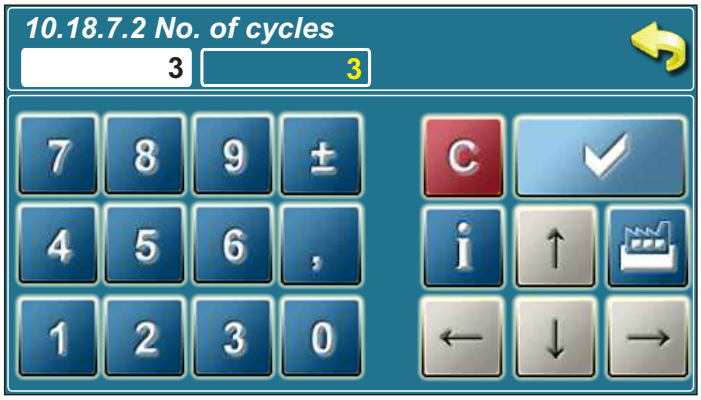
6.7.1 MAXIMUM RUNNING TIME

Possivle selection: - Factory set: **30 min**
- Minimum: 1 min
- Maximum: 600 min

This parameter defines the max. running time of the filling cycle.If the tank beside the boiler does not fill during this time (the tank is full when the flap due to the full tank is no longer able to close itself) the assumption is that there is an operation problem (the suction system does not have pellets in the big tank or the feeding tube is blocked).

6.7.2 NUMBER OF CYCLES

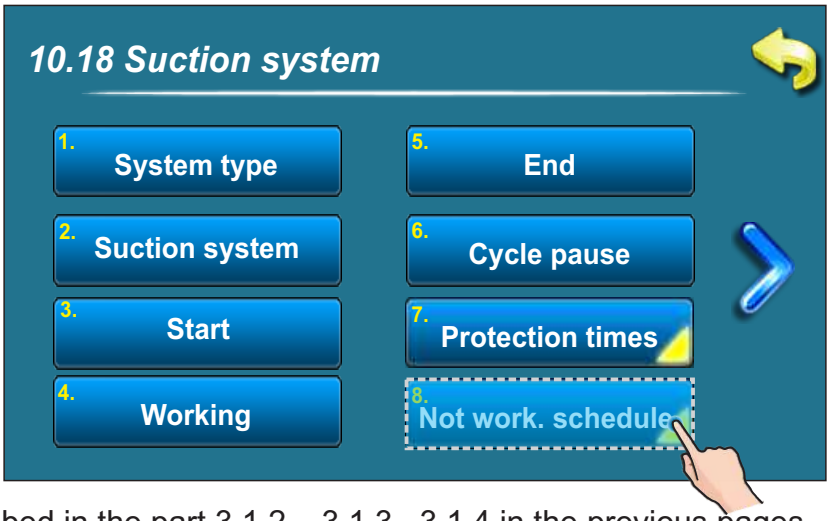




Possible selection: - Factory set: **3**
- Minimum: 1
- Maximum: 20

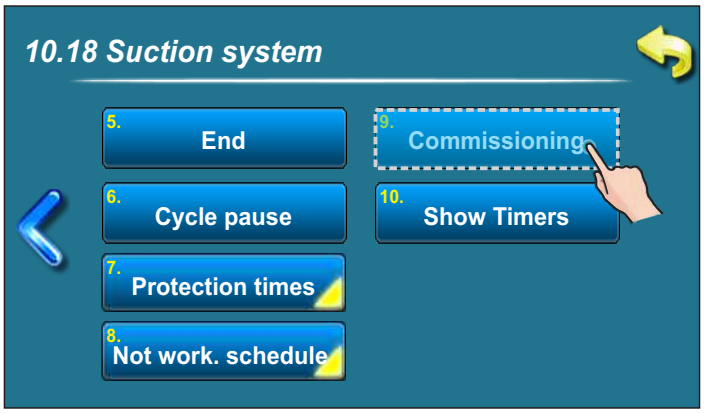
This parameter defines the maximum number of cycles after which the flue level sensor must be covered in the tank beside the boiler.If the flue level sensor in the tank beside the boiler is not covered during the defined number of cycles the assumption is that there is an operation problem (the suction system does not have fuel in the big tank (storage) or the feeding tube is blocked).

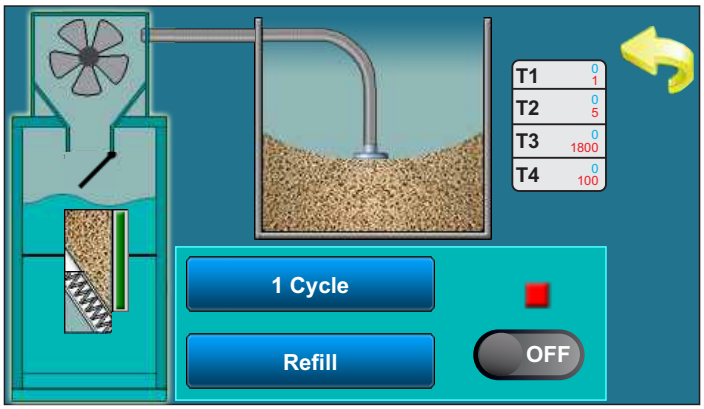
6.8 NOT WORKING SCHEDULE



This menu is described in the part 3.1.2. , 3.1.3 , 3.1.4 in the previous pages.

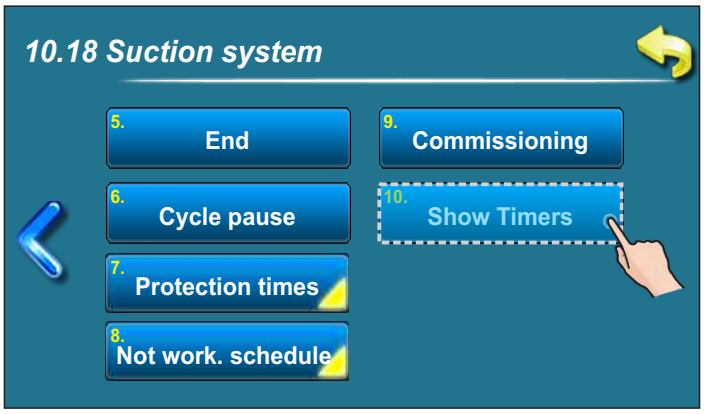
6.9 SETTINGS/COMMISSIONING

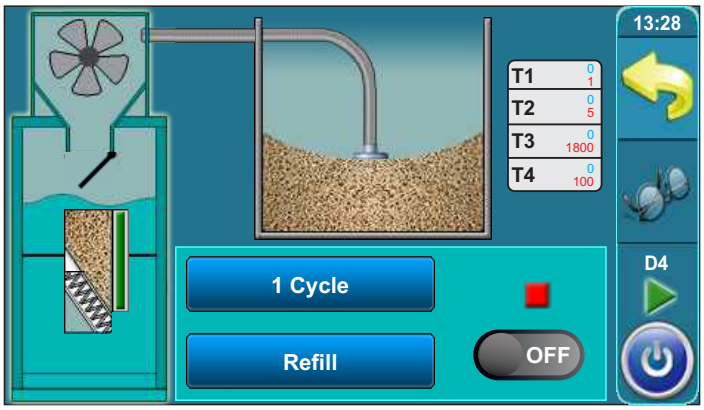




In this option the service personal can easily set the running time of the suction system. By switching on the option 1 cycle or Fill and by tracking the time in the table as also the. replenishment of the turbine tank (through the transparent turbine tank plexi lid) the operation cycles are defined: Start, Operation (Running) and End.

6.10 SHOW TIMERS





By switching this option on, the initial screen which is also visible for the end user, has the set times of the suction system operation written out and counted down. For the suction system setting the option Settings/Commissioning„ is used and in case of a faulty operation it is possible to switch on „Show timers„.

EKO-CK(B) P / CentroPlus + Cm Pelet-set

Menu Pr08			
Parameter	**Name**	**Factory set**	**Description**
FP37	Suction system configuration	0	0 - suction system is not installed 1 - suction system is installed
FP38	START time (sec)	5	This parameter defines how long will only the suction turbine work before the start of the mole or the feeder screw in the tank in order to empty the flexible tubes from pellets which are remaining inside from the last cycle.When in the pellet feeding system is neither the mole nor the feeder screw (feeding is done from a big tank) the START parameter is set on 1 sec.
FP39	RUNNING time (sec)	45	This parameter defines how long will the suction system work (turbine together with the „mole„ or „feeder screw„). With this parameter we define how much the turbine tank will be filled. It is necessary to adjust that the turbine tank fills itself maximum and that the turbine stops working when its tank is filled up.This parameter depends upon the flexible tubes length and the difference in height between the big tank (storage) and the pellet tank beside the boiler.
FP40	END time (sec)	10	This parameter defines how long only the turbine in the end of the filling cycle will work to empty the pellets which are remaining in the flexible tubes („ Mole „ or „ Feeder screw „ are not operating at that time).When in the pelllet suction system is no mole or feeder screw (the feeding is from a big tank) the parameter END is set on 1 sec.
FP41	CYCLE PAUSE time (sec)	15	This parameter defines the pause between two cycles of filling.This parameter has to be adjusted to enable a complete discharge of the turbine tank after one filling cycle and before the start of the next cycle.
FP42	Maximum RUNNING TIME (min)	30	This parameter defines the max. running time of the filling cycle. If the tank beside the boiler does not fill during this time the assumption is that there is an operationproblem (the suction system does not have pellets in the bigtank or the feeding tube is blocked).
FP43	NUMBER OF CYCLES until the sensor is covered	3	This parameter defines the maximum number of cycles after which the flue level sensor must be covered in the tank beside the boiler.If the flue level sensor in the tank beside the boiler is not covered during the defined number of cycles the assumption is that there is an operation problem (the suction system does not have fuel in the big tank (storage) or the feeding tube is blocked).
FP44	TYPE OF SENSOR	0	This parameter must be always set on 0.

7. COMMISSIONING

PROTECTIVE GLOVES ARE OBLIGATORY!!!

- Mount the suction turbine on the pellet tank lid and mount the lateral side of the pellet tank with the checkup opening (if necessary move the flap sensor on the side of the checkup opening).
- In the big tank according to the technical manual mount: or the mole or the box under the CentroPelet – box tank or the feeder screw in the room.
- Connect the flexible tubes on the turbine from the big tank and fasten them with clamps – maximum tubes length in one direction is 10 m , maximum height difference is 2,5 to 5 m(H = 2,5 m – total length L tot = 20 m ; H = 5 m – total length L tot = 15 m) and minimum tube radius is 30 cm.
- Ground the tubes according to the technical manual.
- Check the flap openness and the distance from the sensor according to the technical manual
- **(PelTec / BioTec Plus)** connect the turbine with the boiler regulation with a UTP cable and the main power.
- **(Cm Pelet – set)** on the mother board install the additional board CMPL – 485 and with the UTP cable connect with the turbine , install the fuel level sensor CMSR - 100 on the pellet tank and connect it on the electric board bus (connector) inside the turbine.

PelTec / BioTec Plus

Configuration of the suction system:

- Configurate the suction system - > 10. Installation -> PIN -> 10.18. Suction system.
- Select the system type -> 10. Installation ->PIN-> 10.18. Suction system -> 10.18.1 System type.
- By help of the option10.18.9 Commissioning (Settings) set the times Start, Working, End – if the system has an installed CentroPelet Box tank , set the time Start and End (time for discharging the flexible tubes) on 1 sec.If the system has an installed mole or feeder screw the time Start and End depend upon the length and the position of the flexible tubes and this must be defined in a manner to have this tubes emptied in the end of this mentioned times. The WORKING time also depends upon the length and position of the flexible tubes and is defined according to the replenishment of the turbine tank – the tank must be filled during one cycle (Start – Working – End) (see picture)

- Check the time 10.18.6 – Cycle pause – the turbine must rest as long as needed until the turbine tank is completely empty.
- Set the Not working schedule, i.e. the time when we would like the suction system not to be in operation (due to noise) 10.18.8. Not working schedule -> 10.18.8.2 Table.
- According to the end user's wish switch on the option 10.18.8.3 Last refill – Entering the prohibition time , the suction systems switches on (independent from how much the flue gas sensor is covered) and fills up the tank in order to have the tank full with pellets on the start of the operation prohibition time.
- By manual testing check all installed components -> 5. Operation mode -> 5.6 Suction system -> 5.6.3. Manual test.

Configuration suction system :

- Configurate the suction system. -> Pr08->PIN->FP37->1
- In the menu set the Pr08 time Start (FP38) , Working (FP39) , End (FP40) .
  if the system has an installed CentroPelet Box tank , set the time Start and End (time for discharging the flexible tubes) on 1 sec.If the system has an installed mole or feeder screw the time Start and End depend upon the length and the position of the flexible tubes and this must be defined in a manner to have this tubes emptied in the end of this mentioned times. The WORKING time also depends upon the length and position of the flexible tubes and is defined according to the replenishment of the turbine tank – the tank must be filled during one cycle (Start – Working – End) (see picture).It is possible to follow the timers -> Pr08->PIN exit from the menu by pressing the key On/Off and the mutual pressing of the keys „-„ and „ screw „

- Check the time Cycle pause (FP41) – – the turbine must rest as long as needed until the turbine tank is completely empty.
- Set the Not working schedule for the turbine, i.e. the time when we would like the suction system not to be in operation (due to noise) Pr10->rF02 (on/off prohibition table); Pr10 ->rF03 (table).
- According to the end user's wish switch on the option Last refill Pr10->rF04>On - Entering the prohibition time , the suction systems switches on (independent from how much the flue gas sensor is covered) and fills up the tank in order to have the tank full with pellets on the start of the operation prohibition time.
- By manual testing check all installed components -> Pr10->rF05 – key „+„ = turbine, key„ –„ = mole/feeder screw.
- Explain the end user possible settings and the maintenance of the suction system

PelTec / BioTec Plus

	ERROR	DESCRIPTION
E31	The flap is not closed	Check if the flap is blocked with pellets , if the sensor is soiled with dust , if the sensor is about 1 mm distant from the flap , if the sensor reacts on the flap (the LED lamp is switching on the sensor).
E32	There are no pellets in the big tank/room	Check the pellet level in the big tank/room , check if the flexible tubes are blocked, check if the turbine net is full with dust.
E33	The Mole or Feeder screw does not work	Check the electric connections on the mole/feeder screw, check the filthiness of the mole/feeder screw
E34	Communication error with the CMVAC	Check the UTP cable and its connections with the electric boards.

EKO-CK(B) P / CentroPlus + Cm Pelet-set

	ERROR	DESCRIPTION
E10	There are no pellets in the tank beside the boiler.	The flue gas sensor in the pellet tank is not covered with pellets.Check if there are pellets in the big tank/room ,check if the turbine works , if the turbine net is full with dust, if the flexible tubes are blocked.
E11	The flap is not closed	Check if the flap is blocked with pellets , if the sensor is soiled with dust , if the sensor is about 1 mm distant from the flap , if the sensor reacts on the flap (the LED lamp is switching on on the sensor).
E12	There are no pellets in the big tank/room	– Check the pellet level in the big tank/room, check if the flexible tubes are blocked, check if the turbine net is full with dust.
E13	The Mole or Feeder screw does not work	Check the electric connections on the mole/feeder screw, check the filthiness of the mole/feeder screw
E14	Communication error with the CMVAC	Check the UTP cable and its connections with the electric boards.

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