



BURNER
ATTACK BIOHEAT



INSTRUCTIONS FOR USE



WWW.ATTACK.SK

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Important information

**Please, read this instruction manual carefully before starting the burner.
Burner has to be installed by approved and trained professional staff.**

Keep this manual on suitable place in boiler room. It should be kept in a plastic cover, hung on a visible place on the wall to be reached by a technician doing service in your boiler room.

The BIOHEAT pellet combustion device is to be connected to a *solid fuel boiler*. Boiler door and connection between boiler and chimney have to be airtight.

The BIOHEAT device is intended for combustion of wooden pellets and it must not be used for other types of fuel.



Pic.1



Pic.2



Pic.3


Recommended fuel are pellets under the norm DIN+ with max. 12 % humidity, diameter of 6 mm and max. length of 35 mm. Recommended ash content is 1 % – Pic.1. If the pellets of higher ash content used – Pic. 2 – or wood skin – Pic. 3 are used, it is necessary to decrease value „**Pellet dosing**“, eventually to increase value „**Ventilator rotation adjustment**“ to ensure, that the feeded fuel will be burned-out.


As the burner is not automatically cleaned, it necessary to properly clean burner pipe and grate and to empty the ash pan **daily**.

The BIOHEAT device for pellet combustion has to be installed in boiler room only, in conformity with prescriptions of the local fire safety / construction authority.

Warning sign

Warning sign given in this manual indicates possible risk by breaking the instructions. The types of warning used in this manual are:

 **WARNING** – warns about dangerous situations by breaking the indispensable measures

 **ATTENTION** – warns about less dangerous procedures that may cause safety hazard or damage of property.

Technical description

Operation of the BIOHEAT burner is based on principle of *fuel falling* – pellets are falling from feeder through *supply hose* and *inlet pipe on the grate* to be burned.

The BIOHEAT burner uses *electric ignition*, which automatically lights pellets falling on the grate. Ignition starts, when burner receives instruction from thermostat.

The BIOHEAT burner is equipped with own built-in thermostat (for the case of absence of the built-in boiler /external thermostat, eventually of combined connection with room thermostat). Temperature sensor has to be in appropriate casing in the water coat of the boiler. *Start and stop temperature is adjustable* via burner's menu buttons. Actual operation data are visible on display.



ATTENTION: Head of boiler temperature sensor must not be treated by contact liquid or paste.

The BIOHEAT burner is set for the output of 6–25kW by manufacturer and enables three output levels: 1 (6 kW), 2 (14 kW) and 3 (25 kW).

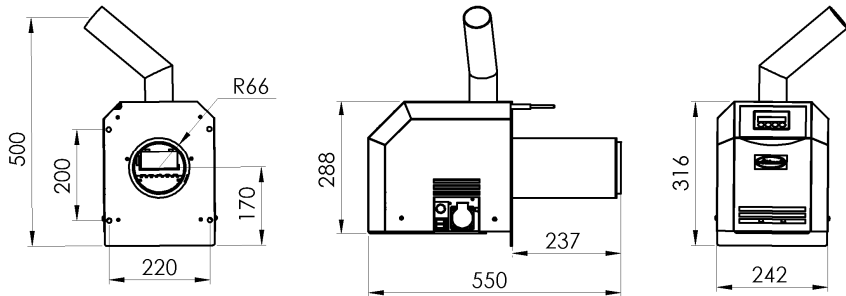
Selected output level is during operation displayed. It is possible to set the output by burner's menu buttons and displayed information. Output range is adjustable in advanced menu within the range of 6–25 kW.

Burner grate is cleaned manually.

Convection boiler parts have to be cleaned regularly to keep high efficiency of heating.

The BIOHEAT burner is manufactured in conformity with industrial norms and prescriptions and it was tested and approved in conformity with directives about industrial devices of low voltage and directives about electromagnetic interference.

Dimensions / delivery contents



The BIOHEAT burner is delivered in a paper box. If the box is damaged, check the burner due to possible harm by transport. Claim of the harm by shipment must be registered by speditieur.

Paper box should contain these items:

- 1 pc. BIOHEAT burner
- 1 pc. Inlet pipe with emergency thermostat of flare-back

Technical data

Model	BIOHEAT
Fuel	Wood pellets, 6 mm
Mode	6–25 kW
Output scale	6–25 kW, steps of 1 kW
For boilers with heating chamber up to	3 m ²
Weight	25 kg
Prescribed chimney draught	20–22 Pa
Diameter of flue connection	150 mm

Main voltage	Main current	Hz
~230V	10A fuse	50




WARNING Electric installation must be done by certified electrotechnician. Main cables can be exchanged only by authorized electrotechnician.

Voltage and energy consumption

Component	Mains/Volt	Min./Max. Voltage	Fuse
Display	5V DC	1 W	-----
Ventilator	230V~	15–58W	800mA
Circuit board	230V~		-----
Ignition	230V~	450W	6.3A
External pellet	230V~	15–220W	1A

Function description

 **ATTENTION:** The BIOHEAT burner works only with boiler thermostat or built-in digital thermostat, eventually with additional room thermostat. In every case it has to be connected through protection against boiler overheating.

Normal start

When thermostat gives instruction to the burner, the ventilator is started and photocell controls the flame. If there is no flame, comes the instruction to blow the burner through. Pellets start falling into the burner within the period stated by control system and ignition is activated. After completing the phase of fuel feeding for ignition, control system awaits flame signalization from photocell.

After flame detection by photocell, small amounts of pellets start falling within the *transition period*. Duration of this period depends on output level set on the burner. Pellet supply is continually increased, until the adequate amount necessary for required output is achieved.

This amount is further supplied into the burner, until the operation thermostat gives signal to stop.

This signal stops pellet supply, while ventilator continues in air supply into the burner.


After detection of fuel burn-out by the photocell, the burner is blown-through and waits for new signal from thermostat.

Normal start, when there is still flame remaining in the burner


When the photocell detects flame during the start period (e.g. after short power supply failure), control system straightly starts with transition period. Pellet burner continues in operation as by normal start (see above).


Normal start, when no flame is detected by control system

Normal start process follows, even if control system does not get flame signal. Shortly after that, it begins with new start with the fuel amount for ignition reduced to 45% , which can be reduced within the whole ignition period. These parameters can be adjusted via service menu, only by a trained person. If the second trial fails, all functions are turned off and the alarm is activated. This alarm is displayed.

 **ATTENTION:** Make sure, that the necessary flue gas temperature has been achieved. It has to be at least 60°C one meter under the chimney top. If the temperature is lower, consult it with your chimneyer. Flue gas temperature lower than 60°C during the combustion process increases risk of chimney damage by condensation.


Pellet burner use

 **ATTENTION:** Pellet burner needs air for combustion. Therefore, the boiler room must have ventilation for air inlet. Area of ventilation for air inlet has to be at least the same as the chimney. Ventilation must be opened.

 **WARNING:** Pellet burner must not be started, until it is proofed, that the smoke can freely flow through boiler and chimney into atmosphere.

Pellets are feeded into the BIOHEAT burner from external feeder, connected to the tank for pellets. To ensure the best function, the feeder should be in position under the angle of 45°C. Feeder should be able to supply approximately 10kg of pellets per hour of continual operation / requirement for pellet supply.

Pellets must be stored in good ventilated room without moisture or in a specially designed hopper.

 **ATTENTION:** The BIOHEAT burner is made from high quality components, which cannot be replaced by less quality spare parts. Warranty is not valid if the components are replaced by other than original spare parts.

Menu buttons and their functions

Burner functions are set via buttons under display. (see also options of settings under the **Production settings**, below).



How to change settings of pellet burner:

„S“ Menu/Enter: Activation of next records and enter/save of changes

„-“ Backspace and decrease of adjustable values

„+“ Menu browsing and increase of adjustable values

„ESC“ Exit/Escape: Exit from manu without saving of new values

Values, that can be set by user are given in the following table:

MENU	Explanation
OUTPUT SETTING	Required output level (1, 2 or 3)
PELLET DOSING	Setting of feeded amount of pellets
RECORD	Error recording for control purposes
BURN-DOWN	Instruction for burn-down of burner
EXTENDED MENU	Access into service menu through code

Displayed messages

Stand-by mode

PAUSE	
OFF	FC: 0 %

Nothing in the burner is started, burner waits for a start signal from thermostat.

Thermostat turns on.

Step 1 Trial blow-through

BLOW-THROUGH	
ON	FC: ? %

Ventilator starts to work and when the photocell detects value under 5%, program continues.

Step 2 Heat-up fuel feed

IGNITION 1	
ON	FC: ? %

Heat-up fuel feed if supplied into the burner and program waits for the "flame" signal from photocell.

Step 3 Transition phase

TRANSITION PHASE	??KW
ON	FC: ? %

Transition phase begins, when photocell and control system detect flame. Small, successively increased pellet amounts are supplied into burner, until the required pellet dose is achieved.

Step 4 Burning

HEATING	??KW
ON	FC: ? %

Burning phase subsists, until being interrupted by thermostat.

Step 5 Burn-down

BURN-DOWN	
OFF	FC: ? %

Thermostat interrupted burning phase and burner starts the burn-down phase.

Step 6: Comeback to stand-by mode.

Menu messages

PAUSE
OFF FC: 0 %

Burner is in stand-by mode.

Press the "M" button.

OUTPUT LEVEL
ENTER EXIT

Here you can change burner output. Level 1 = 6 (12)kW, 2 = 10 (14)kW, 3 = 16 (25)kW.

Range and levels of output are adjustable in advanced menu.

Press the "+" button.

FUEL SETTING
ENTER EXIT

Here you can set supplied amount of pellets. It is not necessary, if the correct pellet weight had been selected in the Pellet dosing in service menu.

Press the "+" button.

BURN-DOWN
ENTER EXIT

To clean the burner or to interrupt the operation from any other reasons, press the "S" button to start the burn-down phase. To restart burner, press the "S" button after removing the ash.

Press the "+" button.

ERROR OVERVIEW
ENTER EXIT

These internal records can be helpful by troubleshooting, when the burner stops and activates alarm. Last 10 different error codes are recorded. for more information, see "Troubleshooting".

Press the "+" button.

MENU/ADVANCED
ENTER EXIT

To enter into the advanced menu you need password (code) and you must know program functions of burner.

Production settings


Before being dispatched, the burner had been set in the following way:

Generally accessible menu:

Menu	Settings	Options	Adjustable
Output level	3 = 25 kW	1, 2, 3	6–25 kW
Pellet dosing	95 %	50–200 %	50–200 %
Burn-down	90 sec.		10–600 sec.
Record	10–26	Non-adjustable	Non-adjustable
Advanced menu	Random value	+ 5	Non-adjustable

"Record" means, that control system saves last 10 error codes. See also "Troubleshooting".

Advanced menu

 **WARNING:** Non-qualified person may cause burner damage by entering into the advanced menu. No warranty relates to such a damage.


Advanced menu	Production settings	Min. – max.	Unit
Output settings	1, 2, 3, 6, 14, 25	6 – 25	kilowatt
Ignition settings	40%	30 – 300 %	%
Period of blow-through trial	15	0–60	sec.
Transition phase	240–480	60–600	sec.
Transition pellet feed	15	10–50	%
Duration of blowing-through	120	10–900	sec.
Max. period of burning	90	0–1080	Min.
Anti-cycle protection	10	0–60	Min.
Output modulation	75	0–100	%
ΔT	10	1–100	K
Photocell (sensitivity)	25	25–80	%
Selected thermostat	Combined	External/Internal/Combi. with room thermostat	
Language *)	ENGLISH		
Output range	3	6–25	
Feeder setting heat amount	48 1100	45–50 0–2000	10xkwh/kg g/6 min.
Ventilator factor	110	10 – 500	%
Time of operation, feeder	0		hour
Menu/Test		Auto/Manual	
Menu/Setting		See Advanced	
Menu / Record	Error codes saving	See Advanced	

*) Languages: Slovak, English, German, Italian, French, Polish.

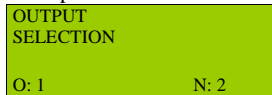
Boiler type	FD20	FD26	FD32	FD36	FD42
Volume of water in boiler (L)	27	31	35	39	43
Volume of combustion chamber (dm ³)	25,5	34	42,5	51	59,5
Required draught (mbar)	0,2				
Nominal output (kW)	25				
Minimal output (kW)	6				
Boiler class	4				
Flue gas temperature – nominal output (°C)	105				
Flue gas temperature – minimal output (°C)	180				
Fuel	Wood pellets				
Water temperature in aftercooling circuit of boiler (°C)	10–15				
Water pressure in aftercooling circuit of boiler (bar)	2–6				

How to change production settings

To change the settings, select the required menu / parameters. By pressing the "+" button you can change the actual values. O:...indicates actual value, N:...can be changed to new value. Values can be increased by pressing the "+" button and decreased by the "-" button. Pressing the "S" button confirms the value and saves it. If you do not wish to save the changes, press the "ESC" button (Exit/Escape).

 **WARNING:** *Please, do not make any changes without reading this instruction manual.*

Example:



```
OUTPUT  
SELECTION  
  
O: 1                N: 2
```

Return to production settings

To reset production settings, select the advanced menu and enter password (code = number by "O"+5). Then, select Menu/setting and press the "S" button. Afterwards, go to "Return to production settings" and press the "S" button again. Thereby, the production settings are re-set.

Here you can also set your own settings in the following way: by pressing the "+" button, go to "Save settings?" and save your own settings by the "S" button. Exit the menu by the "ESC" button.

Regulation of pellet dosing

Before starting the burner, it is necessary to state the pellet dose by the "Feeder setting" parameter. Thermostat must not turn the heating on, while setting.

Firstly, set the "Heat value" parameter to the value given by the pellet producer. If producer gives value of 4,8kWh/kg, set parameter to 48, etc.

Fasten plastic bag around opening of the pellet feeder. Press "S" to confirm and keep the instructions. Weigh the pellets fallen into plastic bag, insert their weight in grams by using the "+" / "-" buttons and press "S" to save the values.

This setting must be done within 15 minutes, otherwise the burner turns into the stand-by mode. Weigh the pellets very precisely!

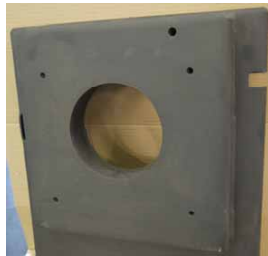
After setting the above mentioned parameters, control system automatically sets all parameters related with pellets feeding.

Installation of burner on boiler ATTACK FD20–42

Undo the bottom cast iron door from boiler FD40–42. Door are fixed by two pins, which have to be push out of the hinges (Pic.1). Then, fix the steel door by pins to mount the BIOHEAT burner on (Pic.2. Pic.3). Undo the cover in bottom chamber (Pic.4). Put burner into the door opening and fasten it by screws. Do not forget to insert the delivered sealing between door and burner. Check, if the end-switch is activated after closing the door (if it was pressed by the mounted stick). If it is necessary, adjust bending of the stick, to achieve appropriate press. Put partition of combustion chamber on the side humps of the cast iron body and push it to the rear boiler side (Pic.5, Pic. 6).



Pic.1



Pic.2



Pic.3



Pic.4



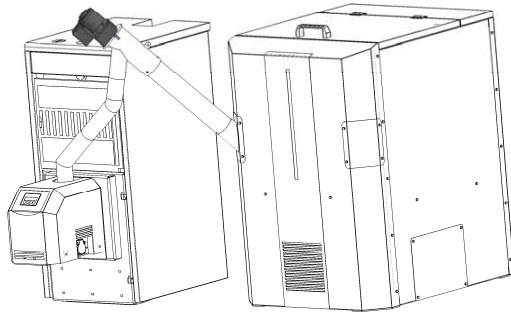
Pic.5



Pic.6

Install pellet hopper and pellet feeder. Connect inlet pipe to pellet feeder and fasten the clamping screw. There should be gap of 400 mm between the feeder opening and the inlet pipe on the burner. In horizontal direction, feeder opening and inlet pipe should be in the distance of 150mm in at least (i.e. not vertically aligned).

Fill the hopper with pellets and connect the feeder into electrical socket (230V). Let the hose connected to feeder loosely hang and fasten plastic bag around the feeder to catch the falling pellets. Let the feeder run, until it feeds the pellets fluently. Disconnect feeder from electrical socket. Adjust length of the hose and connect it to the inlet pipe. Hose should not be in straight position. It should be slightly bended, otherwise the pellets could gather and stuck. Connect feeder into the socket of burner.



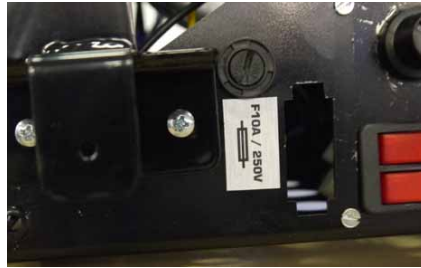
Burner start



By pressing the main boiler switch, the burner is automatically turned into stand-by mode. Burner is turned on by the main burner switch.

According to the requirement for heat supply, burner lights and burns pellets, until the thermostat gives instruction to stop.

Burner is alternatively controlled by temperature sensor of boiler, connected to the TS1 slot at the right upper side of circuit board. There is emergency thermostat installed in the burner. Sensor of this thermostat must be in a suitable casing in the water coat of boiler. In case of boiler overheating, thermostat shuts electrical circuit down. It is possible to start the burner again after removing the cover of thermostat and manual pressing the controller (when the boiler is already cooled down).



Burner is protected against overvoltage by electrical fuse.

Burner stop

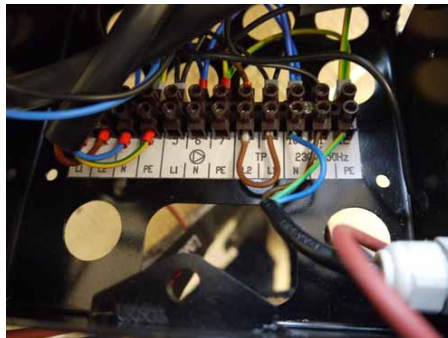
Burner is turned off by the instruction of operation thermostat to stop. Stand-by mode or "Burn-down" are initialized via menu.

Emergency stop

ATTENTION:

In case of emergency, the burner can be turned-off by the main boiler switch and disconnection the boiler plug from electrical socket.

Installation of room thermostat



Take out connectors, which are plugged to the control electronics. After dismantling the holder with control electronics, it is possible to mount conductors of room thermostat. Undo connection cable from terminal (position 8 and 9) and plug connectors of room thermostat. Afterwards, mount the holder with control electronics back and plug the connectors in.

Cleaning and maintenance

It is necessary to properly clean burner pipe and grate and to empty the ash pan **daily**.

It is recommended to sweep the boiler exchanger space out at least twice a month.

Clean pellet inlet into the burner by bottle brush or other suitable kit.

ATTENTION:

Keep ash in closed containers from inflammable materials.

Maintenance once a year in the case of need (by qualified person)

Use menu buttons to activate *Burn-down* and wait, until fuel in the burner burns out. Turn the burner off by burner switch and main switch as well, disconnect boiler plug from electrical socket. Open the door with boiler to 90° approximately.

1. Remove the burner cover and clean photocell by cloth and fine abrasive cleaner (tooth paste). Be careful by flat cable of display and buttons!
2. Clean ventilator blades. The best way is to blow them through by compressed air.
3. Clean pellet inlet.
4. Clean inlet hose.
5. Assemble all the parts back.
6. Clean the hopper and pellet feeder from dust and small dirt.
7. Check state of pellet inlet hose.
8. Put the pellet feeder into operation by connecting its plug into electrical socket (230V~) to be filled with pellets.

Troubleshooting

Burner was turned-off

Check, which alarm had been displayed.

If the display is black and without text, check boiler's thermal protection. If there is no problem, perhaps only the burner's thermal fuse had been turned off. To restart operation, turn the power supply into the burner off, remove the cover and press the small button between joints of the thermal fuse. Thermal fuse is placed directly on the fuel inlet pipe. By restarting, mount the cover back and turn the power supply on. Burner thermal fuse switches off by the temperature of 93°C.

Message on display	Explanation	Error codes by recording
ERROR: IGNITION FAILED		10
ERROR: FLAME LOSS DURING BURNING	Flame extinguished by burning, restart failed	11
ERROR: PHOTOCCELL	Faulty photocell, abnormal light	12
ERROR: CIRCUIT BOARD OVERHEATED	Too high temperature under cover	13
ERROR: TEMPERATURE SENSOR "LOW"	Faulty temperature sensor of the built-in operating thermostat	14

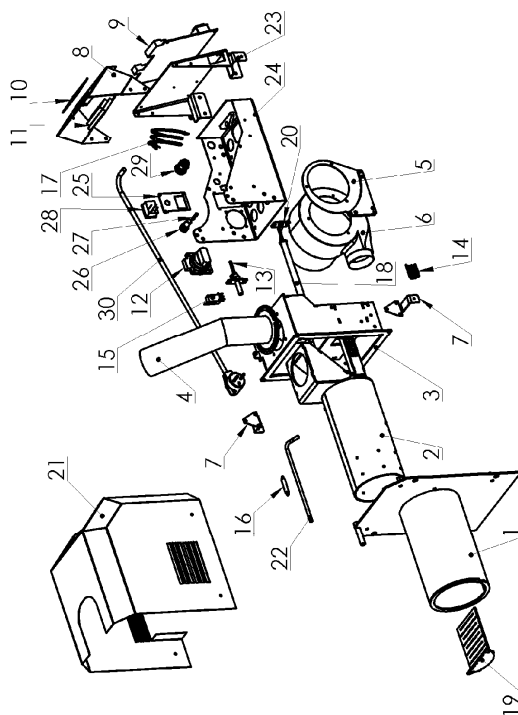
ERROR: TEMPERATURE SENSOR "HIGH"	Faulty temperature sensor of the built-in operating thermostat	15
ERROR: PHOTO-SWITCH	Faulty circuit board	16
ERROR: VENTILATOR RUNS	Ventilator runs, when not necessary	18
ERROR: VENTILATOR STOPPED	Ventilator does not work, when it should	19
ERROR: SMALL ROTATIONS OF VENTIL.	Ventilator rotates too slowly	20
ERROR: IGNITION 1	First ignition trial failed	21
ERROR: FEEDER	Pellet feeder is not connected to burner	22
ERROR: BURN-DOWN FAILED	Photocell detects signal even after 15 minutes after requirement for "Burn-down"	23
ERROR: LIGHT LOSS DURING BURNING	Photocell detects no flame, restart failed	24

Possible error causes

Error code	Possible cause	Actions for correction
10	Feeder does not supply enough pellets. Empty pellet hopper. Faulty ignition fuse. Faulty ignition coil. Photocell requires cleaning.	Set pellet dosing. Refill the hopper. Exchange the fuse. (6.3A). Exchange the coil. (48 Ω +/- 5%). Clean the photocell.
11	Feeder does not supply enough pellets. Empty pellet hopper. Faulty ignition fuse. Faulty ignition coil. Photocell requires cleaning.	Set pellet dosing. Refill the hopper. Exchange the fuse. (6.3A). Exchange the coil. (48 Ω +/- 5%). Clean the photocell.
12	Short circuit or other fault of photocell.	Exchange the photocell.
13	Too high temperature in boiler room.	Prevent from warmth leakage.
14	Faulty thermostat sensor.	Exchange the sensor.
15	Faulty thermostat sensor.	Exchange the sensor.
16	Faulty circuit board.	Exchange the circuit board.
18	Ventilator runs, while burner is in the pause mode.	Exchange the circuit board.
19	Ventilator does not work, when it should.	Exchange fuse of ventilator (800mA); check connections; exchange ventilator.
20	Ventilator runs too slowly.	Clean ventilator; exchange ventilator.
21	First ignition trial failed.	Set pellet dosing.
22	Fault of pellet feeder.	Connect pellet feeder.
23	Fault of pellet supply.	Set pellet dosing.
24	Wrong amount of supplied pellets. Faulty photosensor.	Set pellet dosing. Exchange photocell.

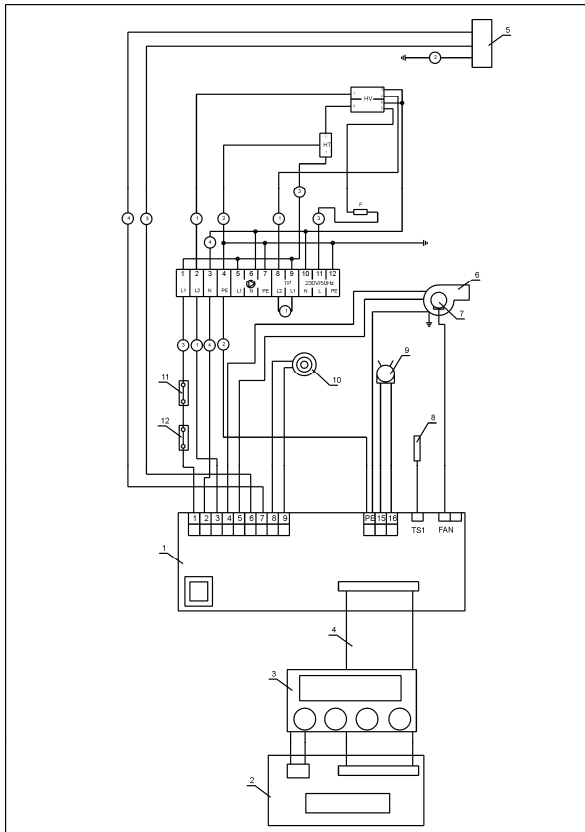
Decomposed view

30	TS091
29	TS094A
28	TH23A
27	TH06B
26	TH05A
25	PELH30842
24	PELH30830A
23	H30F513
22	PELH30678
21	H307015
20	PELH30664
19	PELH30903
18	H30902A
17	H30016
16	H30014
15	H30804
14	TS118L
13	H30803
12	TH31
11	H30809
10	H30808
9	H30806
8	H30970A
7	PEL30615
6	H30984
5	PELH30630
4	PELH30820
3	PELH30670
2	PELH30610
1	PELH30620
Pos. Nr. of drawing	



Spare parts, Codes of parts		
1. Rear part of burner	11. Board of display	21. Burner covering
2. Burner pipe	12. Socket	22. Stick of end-switch
3. Box of ventilator	13. Photocell	23. Pad of electronics
4. Pellet inlet	14. Flat double pin	24. Bin of burner
5. Holder of ventilator	15. End-switch	25. Plate of the BIOHEAT
6. Ventilator	16. Draught spring	26. Fuse casing
7. Holder of covering	17. Cabling	27. Fuse 10A
8. Display pad	18. Ignition coil	28. Double switch
9. Control board	19. Cover of spring	29. Transition
10. Self-adhesive control panel	20. Flange of spring	30. Flexi-cable

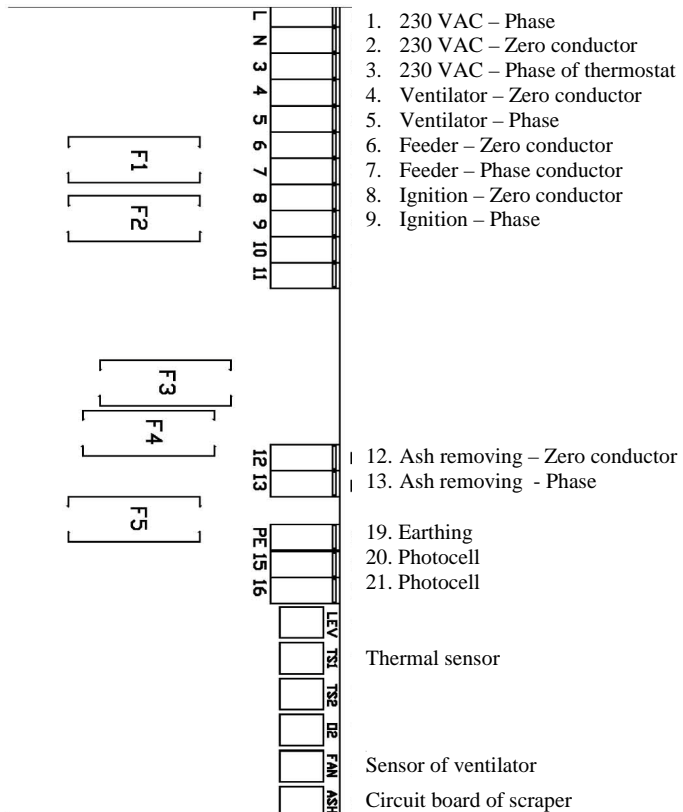
El. scheme of the BIOHEAT connection



Colour marking of conductors

- | | |
|------------------|------------------------------------|
| 1 – Brown | 1 – Main electronics |
| 2 – Yellow-green | 2 – Display electronics |
| 3 – Black | 3 – Display |
| 4 – Blue | 4 – Data cable |
| | 5 – Socket for feeder |
| | 6 – Ventilator |
| | 7 – Sensor of ventilator rotations |
| | 8 – Sensor of boiler temperature |
| | 9 – Photocell |
| | 10 – Coil |
| | 11 – End-switch |
| | 12 – Thermal fuse |

Endings and joints, fuses



Placing and size of fuses

- | | |
|------------------|--------------------------|
| F1 = F800mAL250V | for ventilator |
| F2 = F1AL250V | for pellet feeder |
| F3 = T6.3AL250V | for ignition |
| F4 = N/A | |
| F5 = F2AL250V | for gear of ash removing |



Accessories

Name	Code
Pellet hopper – 350 l	PEL9600
Pellet feeder – 1,5 m	PED150
Pellet feeder – 2,5 m	PED250

Advanced menu

The following data/parameters can be set by the qualified person only.

All issues of the advanced menu are accessible by pressing the "S" button. Actual setting is permanently displayed in the left bottom corner by "O:" (time/value), unless the new value is inserted in the right bottom corner by "N:" (time/value).

To increase and decrease time or values, press buttons „+“ and „-“. To confirm and save new values, press "S". To exit without saving, press "ESC".

To enter into the advanced menu, add 5 to the displayed random number. Example: there is „18“ by both – „O:“ and „N:“. Press „+“, unless the „N:18“ changes to „N:23“ and then press "S". Thereby, access into the advanced menu is enabled.

Example:

MENU/ADVANCED	
O: 18	N: 23
Old	New

Output setting:

OUTPUT SETTING	
ENTER	> EXIT

Three outputs are to be selected for usage as the MAIN OUTPUTS in generally accessible menu (6–22kW) .

After pressing „S“, there is the "OUTPUT 1 (kW)" displayed in the left upper corner by indication of the "OUTPUT SETTING". In the left bottom corner will be "O:14" (i.e. actual value of the main output in kW).

To change the main output, press the "+" button, unless the required value is displayed in the right bottom corner, e.g. "N:18". If you press "S", this new value (18kW) will be saved as the output level 1. Afterwards, the output level 2 is displayed ("OUTPUT 2") and it can be set to the required value. If you do not want to change it, press "S" to save the value actually written on display, e.g. "N:22". Therefore, the output level 2 ("OUTPUT 2") will be 22kW.

To let display without saving the changes, press "E".

Ignition setting:

IGNITION	
ENTER	< > EXIT

Ignition fuel dose in % is to be set here. This value had been automatically calculated adequately to the weigh inserted in the Feeder setting – quantity.

By pressing the „S“, the "Ignition dose 1" is displayed in the left upper corner. Changes are made in %, the first dose was set to 80g. If you increase this amount to 110%, the first dose will be 187g.

If the first burner ignition trial fails, the Ignition dose 2 is activated – from production it is set to 25% from 80g, i.e.30g.

Setting of period of the trial blow through

TIME OF BLOW
THROUGH
ENTER < > EXIT

Period of the trial blow through defines time, when the boiler and the chimney are ventilated before combustion starts (10–100 seconds).

For boilers, where there is difficult to achieve own draught, it is necessary to increase period of the trial blow through. From production it is set to 15s.

Setting of transition period:

TRANSITION
PHASE
ENTER < > EXIT

This serves to set duration of the period from the first flame detection, until the full pellet doses (determined by the main output) are supplied.

There are two parameters of transition period: the first is 12kW and the second is 25kW. Time set by the first parameter determines, how long it will take to reach 12kW. Time of the second parameter determines period to achieve 25kW, since the flame is detected. The lower the required output is, the shorter is period necessary to reach it.

Supply setting during the transition period:

TRANS.DOSE
ENTER < > EXIT

Here you can set pellet doses, supplied during transition period, which takes from flame detection until the burner output of 6kW is reached.

Set the required dose supplied into burner after the flame is detected. Fedded amount will be continually increased with every dose during the defined period. Setting from production is 15% from the full dose for 6kW.

Setting of period for cleaning by blow-through:

TIME OF CLEANING
BY BLOW-
THROUGH
ENTER < > EXIT

Cleaning by blow through is activated, after the thermost is switched off and the value detected by photocell decreases under 12%.

Setting of max. time of burning:

MAX. TIME OF
BURNING
ENTER < > EXIT

This parameter determines max. time of permanent burner operation.

Setting of min. pause between burn-down and ignition:

ANTI-CYCLE
ENTER < > EXIT

This parameter represents period for the next ignition to come after burning-down.

Setting of period for cleaning by blow-through:

MODULATION
ENTER < > EXIT

By determined value of ΔT , before reaching the required boiler temperature, boiler output decreases automatically to specified level.

Setting of photocell sensitivity:

PHOTODIODE
ENTER < > EXIT

Here you can set photocell sensitivity, i.e. value of light (in %), that should control system consider as a flame. If an appropriate photocell is installed, it should not be necessary to set the sensitivity for light. Setting from production is: 25%.

Selection of thermostat:

THERMOSTAT
ENTER < > EXIT

Thermostat to be used can be set here: external boiler thermostat, burner temperature sensor, or combination with room thermostat.

When burner temperature sensor is used, two parameters can be set. Select the *start temperature* as first and save the value by "S" button. Then you can change *stop temperature*. By pressing the "S" button you can set this value as well. Now the burner will work in the new range of temperature values. Difference between start and stop temperature should be at least 5°C.

Selection of language:

LANGUAGE
ENTER < > EXIT

You can select Slovak, English, German, Italian, French or Polish language.

Setting of output range:

OUTPUT RANGE
ENTER < > EXIT

Burner works in the output range of 6 –25 kW, as it is selected by this parameter.

Setting of pellet doses:

FEEDER SETTING
ENTER < > EXIT

= The most important parameter of control system!
Here you set pellet dose, supplied by feeder at full operation.

To set pellet dose you need a plastic bag and very precise weigher. After access into parameter you will have to insert the Heat value of pellets (kWh/kg). Then you will read the instruction to put the bag on. (Pellet feeder should be filled with pellets up to its outlet.). Put the bag on the feeder and press the "S" button.

Now watch the countdown on display, while the feeder works for 6 minutes. Then insert weight of the fallen pellets by "+" and "-" buttons and confirm / save by the "S" button.

Setting of ventilator:

SET.OF
VENT.ROTATIONS
ENTER < > EXIT

By this parameter it is possible to adjust flue gas by using flue gas analyser for the CO and O2 content in the flue gas.

Period of feeder operation:

FEEDER OPERATION TIME
ENTER < > EXIT

Here you can see, how long did the pellet feeder work. You can use it e.g. for calculation of the energy consumption.

Test:

MENU/TEST
ENTER < > EXIT

Useful by troubleshooting. Here you can manually or automatically control the components. This function is very helpful by solving problems with particular components. In manual mode you can test every single component, by pressing the "S" for start and "ESC" for stop. For step forward to the required part, press "+"/"-". Display indicates in the following order:



Ventilator (during ventilator test, indicated rotations per minute should be stabilized around 2000);

Pellet feeder (start/stop by the “S”/“ESC” buttons);

Ignition coil (initialized by pressing “S” and stopped by “ESC”);

Next indicated options: Actual temperature, if temperature sensor is not connected; actual temperature of photocell; light indicator (ON/OFF); application close.

Settings:

```
MENU/SETTINGS
ENTER < > EXIT
```

Settings made during installation are saved here. Installation settings can be reset here as well.

Three main options are accessible: Loading of settings, Saving of settings and Production settings.

- “Loading of settings” – you can reset the original settings;
- “Saving of settings” – finally made burner settings – performed by installer. This enables browsing of settings for the case of too many parameter changes
- “Production settings” – original settings that can be re-loaded again.

Record:

```
MENU/ERRORS
ENTER > EXIT
```

All errors are saved and displayed here, together with their frequency. Final number of ignition trials is recorded here.

Four options are available here: number of errors, number of first ignitions, number of second ignitions, newest errors.

- “Number of errors” –displays every code of error particularly, e.g. E-CODE 10(X). See page 17, where the codes and explanation are given.
- "Number of first ignitions" – indicates, how many ignitions were done
- "Number of second ignitions" – indicates, how many second ignition trials were done by burner (i.e. how many times did the first trial fail.)
- "Last errors" – indicates codes of errors in order of their incidence. It enables better problem solving.



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