ENG

NBE - POWERED BY NATURE

NBE PELLETS SYSTEM

Version 7

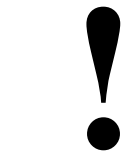
CONTENT LIST:

Dear Customer. Thank you for choosing a NBE product. This product is designed and manufactured to the highest standards in the EU. In order for you to get the most out of your product, we strongly recommend that you carefully read this manual prior to installation and operation. In the event that you encounter any difficulties during installation or operation, we recommend that you first refer to this manual or the information provided in the support section found at www.nbe.dk.

Note: Help text on all menu items is displayed in the controller and is therefore not described here in this manual. It is recommended to study the menus prior to initial start.

Save this manual, so you always have it available when needed.

COMMENTS ON THE MANUAL:

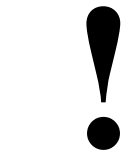


Never handle the auger, blower, nor crawl in the hopper when the system is powered. There will be no warning prior to the activation of these components. The boiler must not be operated without the shield on the burner

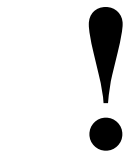
The system is provided with an electrical current of 230V/50Hz. An improper installation or improper repair can cause life-threatening electrical shock. Electrical connections must be performed by the person who has the right skills and training. Performance of electrical installation must be carried out in COMPLIANCE with the relevant rules. Always disconnect the system from the electrical supply prior to starting maintenance work or servicing. The system must be connected to a separate electrical circuit, which is equipped with the proper circuit breaker and earth leakage breaker.

The boiler must be mounted to a functioning chimney. In the event that you smell smoke or see any other indication of improper draft of the chimney, all operation of your system must cease immediately and must remain so until a solution to the draft problem has been resolved. Continuing operation may result in death or injury.

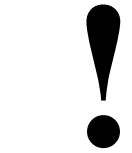
Always read the manual before system installation or repair. If in doubt, seek professional help.



Open top covers etc. with extreme caution. When the boiler is in operation, there is a risk of high temperature surrounding the top covers, which can result in injury. Avoid handling the boiler while it is in operation. Never open the ash tray while the boiler is in operation



The system may be operated by skilled people. If you are in doubt as to the safe operational use of the boiler, contact your dealer.

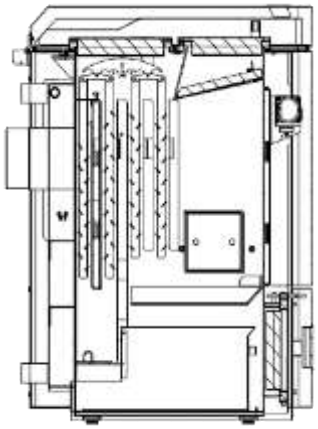


The menu structure etc. for the controller is supported by the help texts found in the control box itself. Due to constant updates and new features, the menu structure of the controller will not be described here in this manual. Instead, it is recommended to browse the controller thoroughly prior to use and to receive an overview of all functions, etc. by your installer.

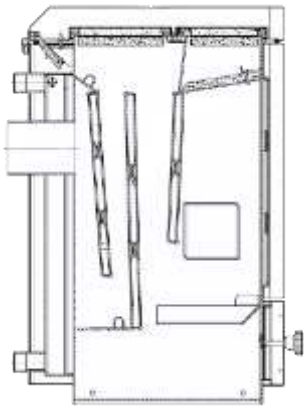
This manual must be kept at the boiler!

BOILER SPECIFICATIONS:

Black Star	BS1016	BS1016	BS2030	BS4050
Height mm:	1017	1017	1017	1130
Width mm:	450	450	550	663
Depth mm:	715	715	778	883
Chimney mm:	130	130	150	150
Outlet:	1 1/4”	1 1/4”	1 1/4”	1 1/4”
Inlet:	1 1/4”	1 1/4”	1 1/4”	1 1/4”
Filling:	½ ”	½ ”	½ ”	½ ”
Efficiency:	93,3%	93,4%	94,7%	91,4%
EN Class:	5	5	5	5
Output:	10kW	14kW	24kW	48kW
300-ELAB-	1683	1700	1765	1859
Black Star	**BS20**	**BS30**	**BS30**	**BS40**
Height mm:	980	980	980	1084
Width mm:	430	530	530	628
Depth mm:	630	693	693	795
Chimney mm:	130	150	150	150
Outlet:	1 1/4”	1 1/4”	1 1/4”	1 1/4”
Inlet	1 1/4”	1 1/4”	1 1/4”	1 1/4”
Filling:	½ ”	½ ”	½ ”	½ ”
Efficiency:	91,7%	93,0%	92,0%	92,5%
EN Class	3	3	3	3
Output:	10 kW	16 kW	30 kW	40 kW
300-ELAB-	1398	1400	1407	1497



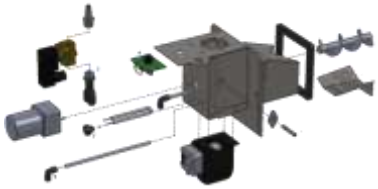
BS1016



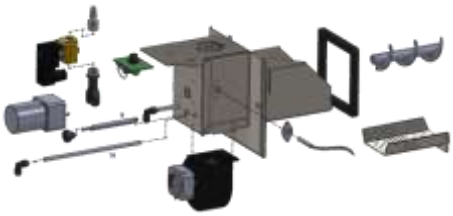
BS20

BURNER SPECIFICATIONS:

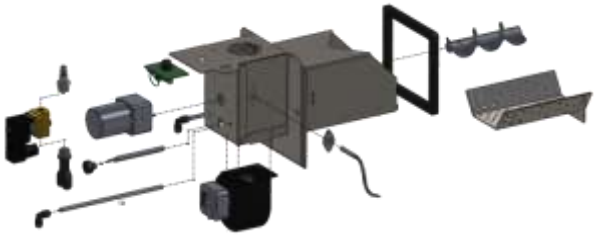
10 kW burner:
Up to 60kg/day
40 watt/hour
Weight 10kg



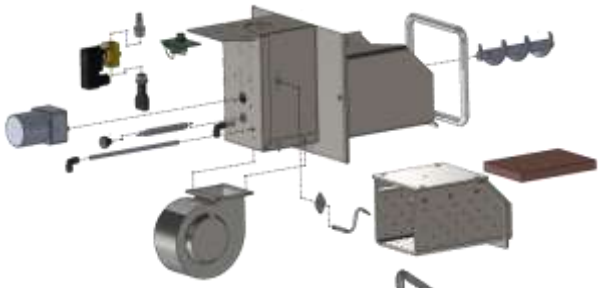
16-24kW burner:
Up to 110kg/day
60 watt/hour
Weight 12kg



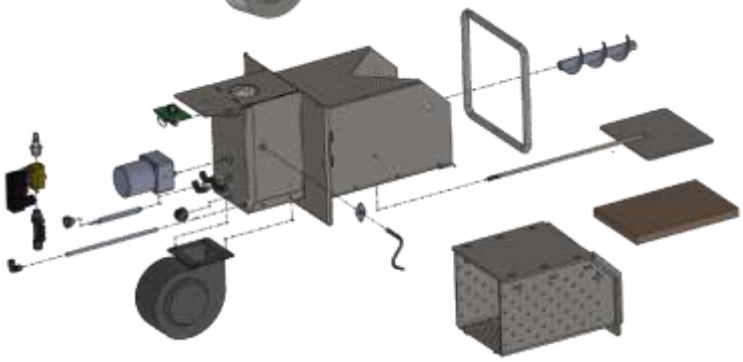
30kW burner:
Up to 150kg/day
80 watt/hour
Weight 15kg



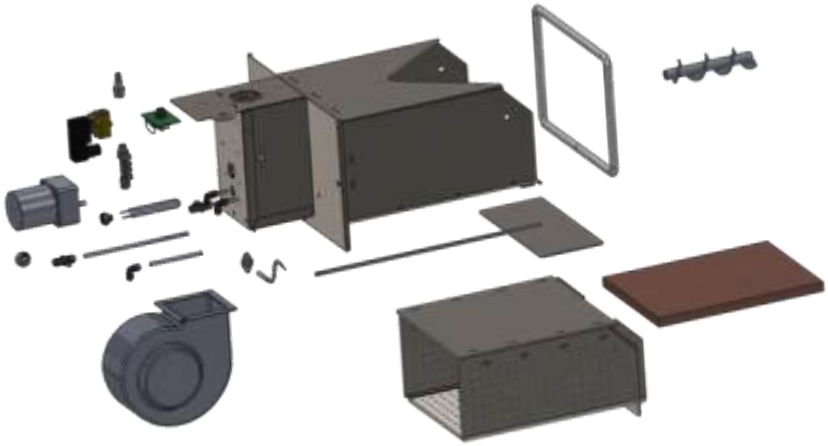
40-60kW burner:
Up to 300kg/day
150 watt/hour
Weight 30kg



80-120kW burner:
Up to 600kg/day
200 watt/hour
Weight 40kg



150-200kW burner:
Up to 1000kg/day
250 watt/hour
Weight 60kg



BOILER ROOM DESIGN:

The boiler room for biomass boilers must be performed in accordance with the Danish Institute of Fire "Fire Standard No. 32" BTV32. In addition, you must comply with the rules set forth by your local building codes, environmental authorities, and labor inspectorate. If you are in doubt on how to set up your boiler room, we recommend that you contact your local chimney sweeper for guidance.

1. Wall and Ceiling
2. Distance to the Wall
3. Floor
4. Area and Lighting
5. Chimney
6. Air
7. Water Faucet
8. Fuel
9. Prohibited Liquids and Materials in Boiler Room.
10. Permit, Notification and Inspection

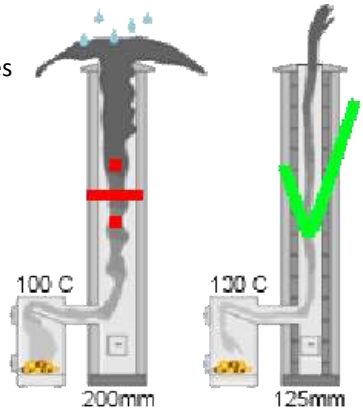
1. **Wall and Ceiling**. Ceiling surfaces must be constructed with at least Class 1 surface material. If the ceiling surface happens to be the underside of the roof, the material must be made of noncombustible materials. Wall surfaces must be constructed of at least a Class 2 surface material.

2. **Distance to the Wall.** Distance from the boiler or flue pipe to any combustible material should be large enough of a distance to prevent temperatures from reaching an excess of 80 ° C. This requirement applies even if the combustible material is covered with non-flammable material. If the distance is greater than 500 mm, the distance requirement is typically satisfied.

3. **Floor.** Floors should consist of (or be covered with) non-combustible material under and around the boiler of a distance of at least 300 mm from the boiler sides, and 500 mm from the boiler's front (i.e. the side where the ash is removed).

4. **Area and Lighting.** The boiler room and area around the heating system must be large enough to allow for easy operation, cleaning, and maintenance of the heating system and boiler room. There must be adequate lighting so that supervision and maintenance can be performed safely.

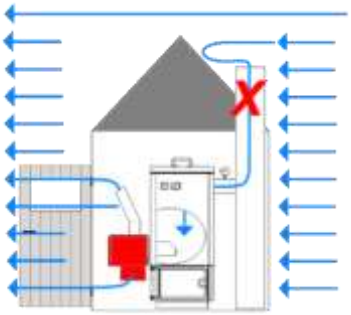
5. **Chimney**. The chimney must be of a design, aperture area, and height that provides adequate draft conditions and sufficient exiting of flue gasses. The chimney draft is created by negative pressure resulting from the buoyancy of the hot smoke rising up through the chimney. If there is not enough draft in the chimney, the smoke will not properly rise and will instead seep out through small cracks. This can result in toxic smoke seeping into the house.



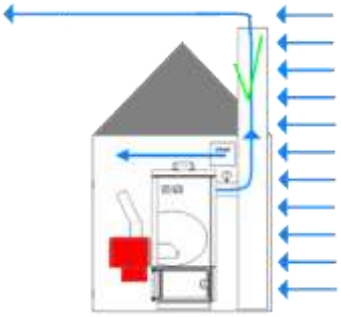
BOILER ROOM DESIGN:

The size of the chimney opening must match the amount of flue gases the chimney has to lead away. If the opening in the chimney is too small, this will prevent the smoke from exiting fast enough due to the large resistance in the chimney. This could cause the smoke to turn back; thus allowing for toxic fumes to enter into the house. Simultaneously, the pellet fuel may not be completely burned, due to the lack of oxygen for combustion. This can cause traces of soot to sit in the chimney and create what is called shining soot, which increases the risk of chimney fire. The chimney opening must also not be too large since cold air can enter the chimney from the top. When the chimney becomes cooled, condensation can occur and develop soot inside the chimney. Soot is mostly a cosmetic problem, because it can penetrate through the chimney and cause ugly brown splotches to appear on the walls inside the house. In addition, it is important that the chimney protrudes high enough above the roof so the smoke does not bother the surrounding houses. Environmental authorities have the possibility of prosecuting you if there are neighbors that complain about the smoke or odor.

What signs are there, if the chimney is not working?



- Light sensor is sooty or melted.
- Smoke in the hopper.
- Warm drop shaft.
- Smoke billows out of the fan or boiler during startup.



If you have any problems with your chimney, it is a good idea to keep a "diary“ of any draft problem; as draft problems are often associated with wind in certain directions. Wind blowing on one side of the house can cause under pressure on the other side of the house. Overpressure and under pressure will try to balance out even through a chimney, if possible. It is a good idea to ask your chimney sweeper about the size of the chimney and flues, the location of chimney cleaning doors, and whether it is required to have steps on the roof. He will also perform a fire prevention inspection

6. **Air**. The pellet boiler should be supplied with enough air for combustion. This can be achieved if the pellet boiler is installed in a room which is equipped with a sliding window with an adjustment bracket, an adjustable air vent from the outside, or by providing the combustion chamber with air through a duct from the outside.
The area size of the fresh air valve should generally be the same as the internal diameter of the chimney. It should also be mounted on the same side as the chimney to compensate for any pressure differences.

Note: drum dryers, range hoods, oil burner in the same room, all use high pressure blowers, that steal the air in the room!

7. **Water tap**. There must be a tap in the boiler room. If the boiler output is less than 60 kW, a powder extinguisher (at least 5 kg) will suffice.

BOILER ROOM DESIGN:

8. Wood Pellets. The pellets must consist of pure wood, **6-8 mm max 8% water**. Materials with glue, paint, wood paint or plastics must not be burned. If the fuel storage is greater than 0.75 m3, the boiler system and fuel storage must be located in a separate fire cell with at least one BD30 door to the other room. If the fuel storage or hopper is placed in the open or under a shelter, there may be minimum distance to the building that should be observed. Exposed fuel may not be in the boiler room, except logs. Do not exceed 4.75 m3 fuel in the boiler room, including fuel storage and usage storage

9. Prohibited liquids and materials in boiler room. The boiler room must be kept clean and contain no combustible materials nor flammable liquids (except oil for oil burners). The floor must be kept free of spilled fuel, dust and combustible waste as well as waste from other activities in the room. Any burning embers must be extinguished with water and transported to a secure storage location in the open.

10. Permit, notification and inspection.

Building permit:

You must obtain a building permit if the burner is situated in a building that is part of the Building Regulations 1995 (commercial buildings); though not for animals and farm buildings

Notification:

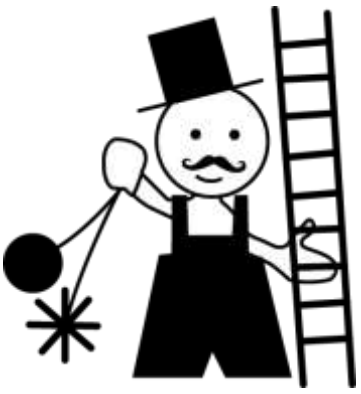
The heating system must be reported to the local council and registered with the chimney sweep.

Inspection:

The chimney sweeper will regularly supervise your biofuel boiler. If the chimney sweeper becomes aware of any illegality under the rules for fireplaces and chimneys in the building code, he may notify the local council if the owner does not change the illegal conduct.

Insurance:

You must notify your insurance company about your biomass system.



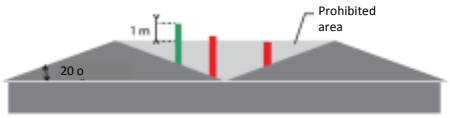
REQUIREMENTS FOR CHIMNEY HEIGHTS:

Statutory air pollution requirements for solid fuel boilers up to 1MW.
(Only applicable for newly-built chimneys.)

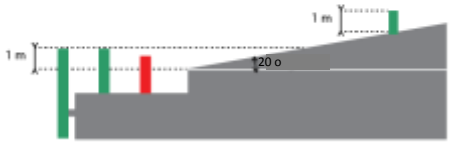
Buildings with a roof slope that is less than 20 degrees.

Roofs with a slope of less than 20 degrees is counted as flat

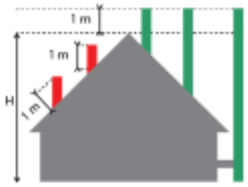
Buildings with a double roof and roof slope that is less than 20 degrees.



Buildings with a roof slope that is less than 20 degrees and is adjacent to another building.

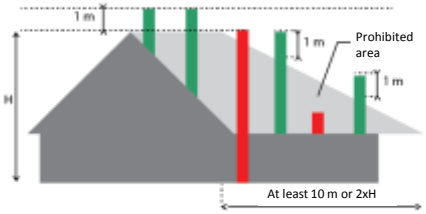


Buildings with a slope greater than 20 degrees.



Buildings with a slope greater than 20 degrees and has an adjacent building with a flat roof.

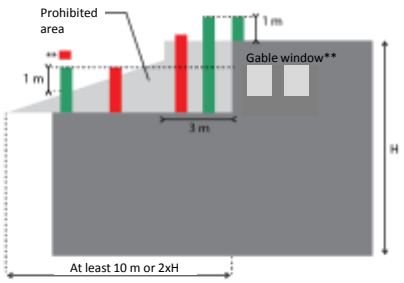
* Highest value selected



Property block or industrial building with an adjacent building.

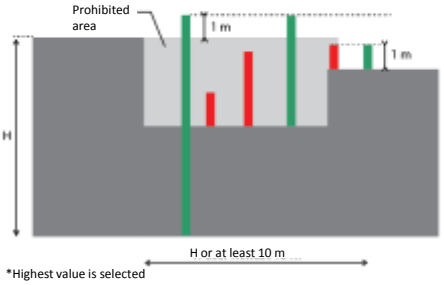
* Highest value selected.

** At gable windows, the chimney must be at least 1 m above the gable window's upper corner.



Property block or industrial building with two adjacent buildings.

* Highest value selected.

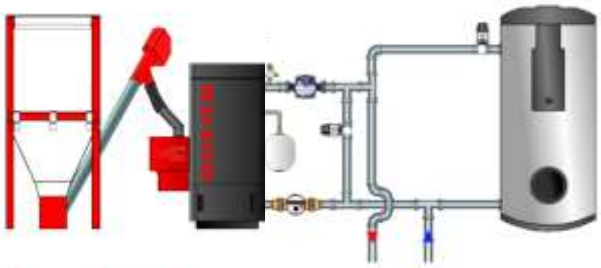


*Highest value is selected

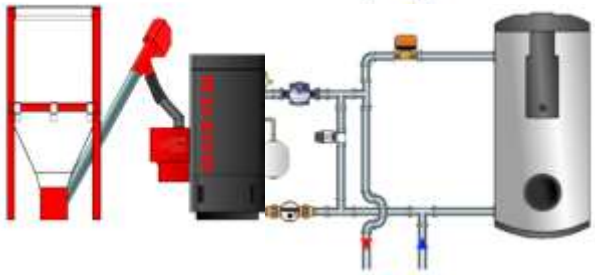
INSTALLATION OF THE BOILER:

A correctly executed installation ensures that the system functions properly.
Both national/local guidelines and requirements must always be observed.
The boiler can be installed on a pressurized system up to max 2.5 bar.

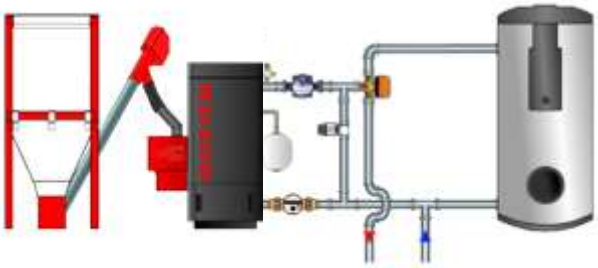
1. Standard.
DHW with mechanical flow control



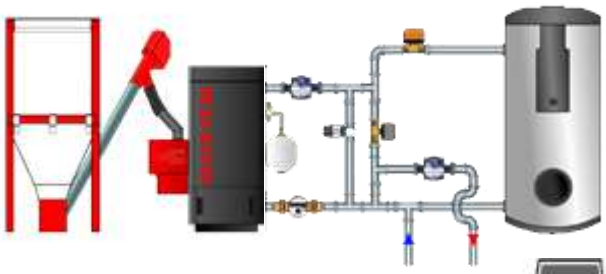
2. DHW with 2 way valve.
Typically used when DHW is small or when the surface coil is small.
Heat for the house is supplied while hot water is being produced.



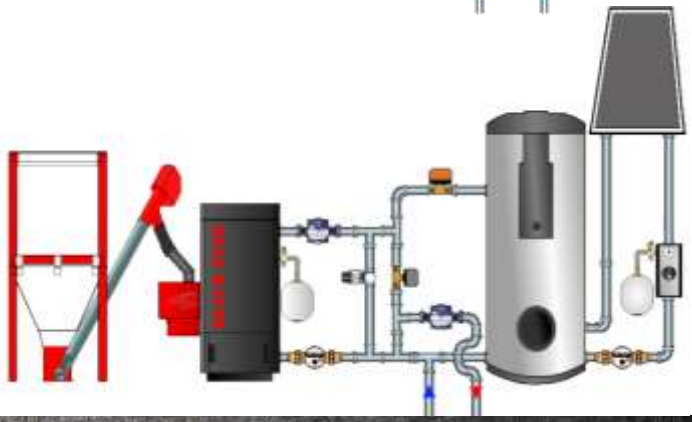
3. DHW with 3 way valve.
-Typically used when the water heater is large, and when the surface coil is large
-The house is not supplied with heat while producing hot water. The house must therefore be able to manage without heat for short periods during the winter .



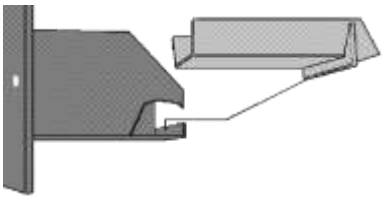
4. Weather compensation.
Allows you to have a high temperature on the boiler.
Manage the supply temperature to the house in relationship to the outside temperature and chill factor.



5. Weather compensation and solar heating
Do not go down on equipment ☺



INSTALLATION OF THE BURNER:



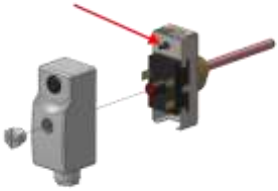
General Guidelines:

Installing the burner on the boiler:

1. Check that the burner is not damaged during transport.
2. Check that the burning grate is inserted correctly in the burner (see image right).
3. Mount the burner and tighten the burner with the 2 wing nuts supplied.

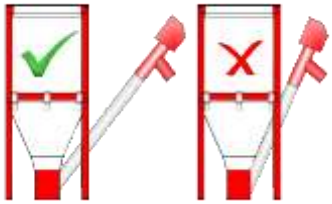
Never use locknuts, as the seal between the boiler and the burner can leak over time.

4. Make sure that the burner is horizontal and that all connections are tight.
5. Mount the shield and the connector on the burner.
6. Install electricity for safety cut-off thermostat according to the wiring diagram. SAFETY THERMOSAT MUST ALWAYS BE FUNCTION TESTED! The thermostat can be tested by using an electric kettle. The thermostat must switch off when the temperature feeler is dipped into boiling water. If necessary, adjust the switch-off temperature lower by turning the screw inward. Reset the thermostat by pressing hard on the red button!



External auger:

7. Install the auger output over the burner.
8. Auger should be at an angle between 0 and 50 degrees.
9. The flexible hose should be angled enough as to allow for the free passage of the wood pellets to the burner without getting stuck in the PVC hose.

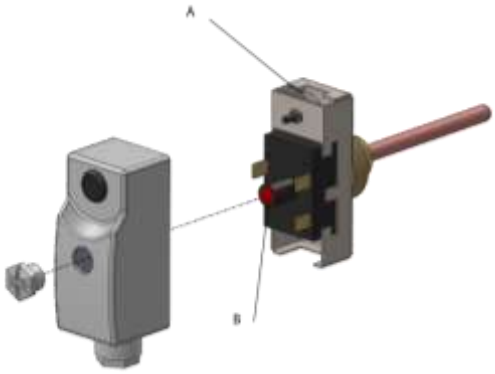


INSTALLATION OF THE BURNER:

Temperature sensor on the boiler:
Mount the sensor within a sufficiently long thermo well.
Use a fastening strip or similar to prevent accidental slippage.

Safety thermostat:
Mount on either the left or right side of the boiler as displayed in image.
Note: Functional testing of the high limit safety thermostat is required before starting up the boiler.

To test, press moderately on the disc (shown in A) in the direction towards the temperature feeler. A small "click“ will occur, signaling that the connection between C and C2 is interrupted and that the high limit safety thermostat is triggered. To re-activate the thermostat, press hard on the red button marked (B) in the drawing. You will also hear a "click", signaling that the connection between C, and C2 is restored and that the high limit safety thermostat is activated and ready for use.

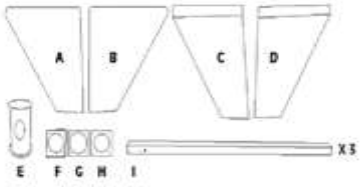


Semi cleaning on BS1016, BS2030 and BS4050:
The boiler cleaning system must be connected with 230V AC through the socket located on the back of the boiler. In the control box, make a connection to output (L5-L10). The cleaning system will run every time the burner conducts a blower cleaning sequence, ie. typically 5 sec. every 10 min. These settings can be configured under the Cleaning menu in the controller.

WOOD PELLET HOPPER:

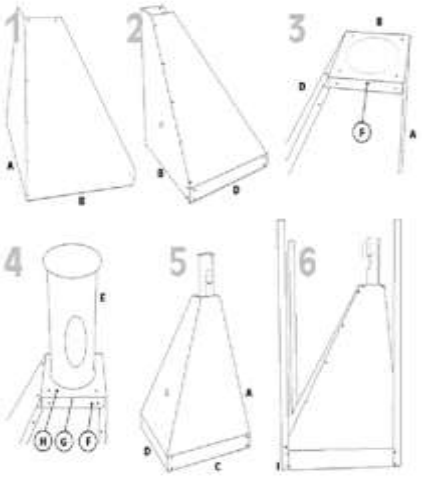
There are several hopper solutions, examples include a steel hopper, fabric hopper and mini hopper which is built together with the boiler. All hoppers can be extended for bulk storage/feeding via the vacuum transport.

Steel Hopper:



Available in 4 different models

60x60cm = 200L = 140 kg
80x80cm = 320L = 220 kg
80x140cm ext. = 500L = 350 kg
100x100cm = 500L = 350 kg



Mini hopper, built together with boiler:
Available in 3 different models:
Can be mounted to the right or side of the boiler.

BS1016 mini, 150 kg
BS2030 mini, 200kg
BS4050 mini, 250kg

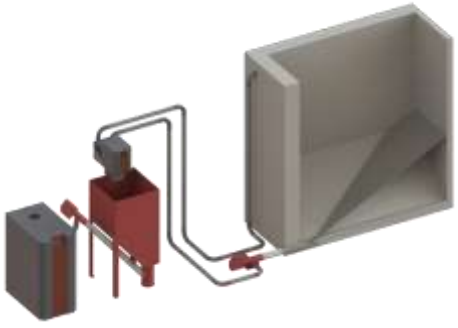
VACUUM TRANSPORT:

The Vacuum System for wood pellets makes it easy to customize various delivery forms for your system. Here are a few examples of ways to configure your vacuum transport.

Cloth silo 3-5 tons with vacuum transport to BlackStar hopper.

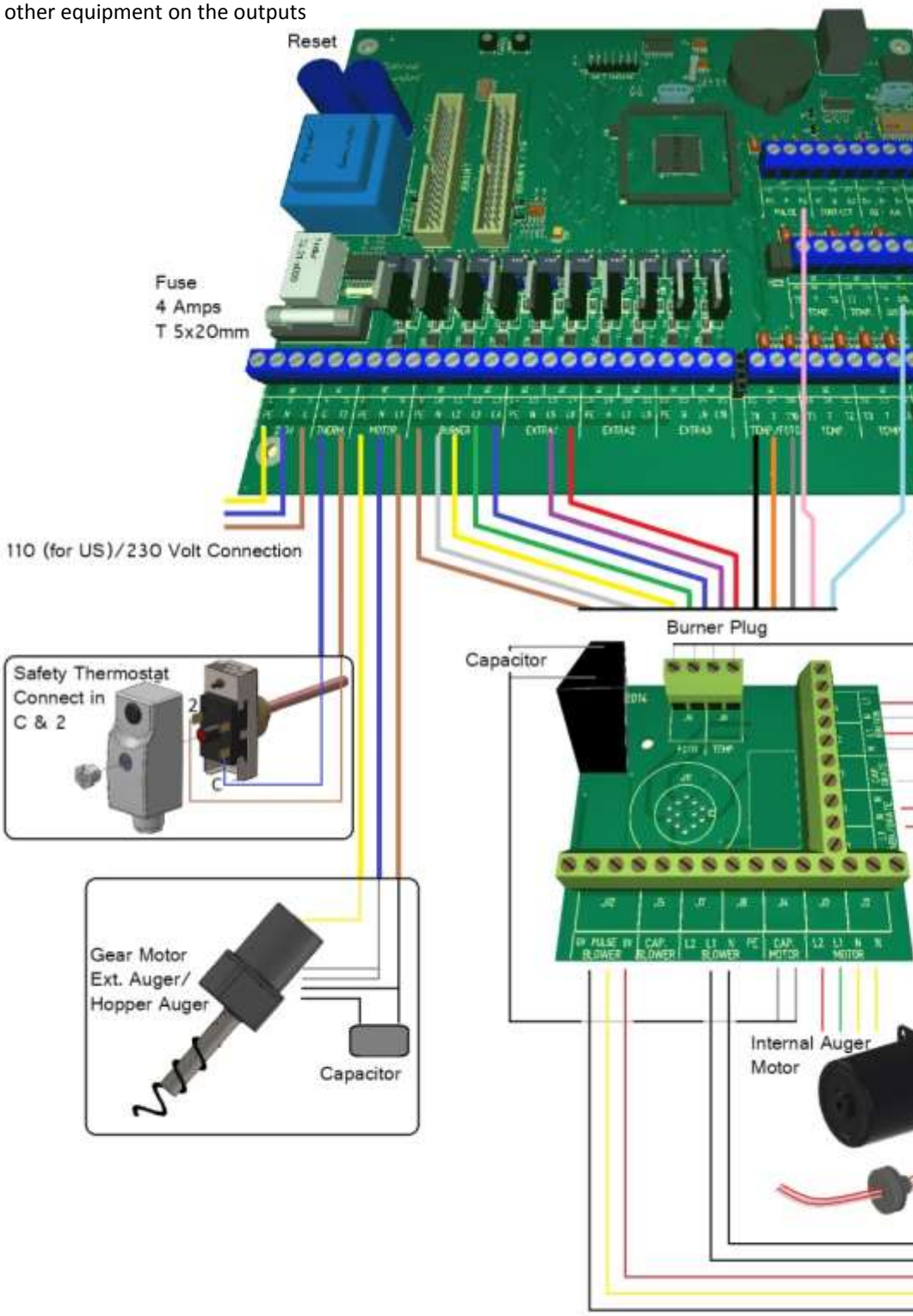
Cloth silo 3-5 tons with vacuum transport to standard hopper.

Home build with vacuum transport to standard hopper.

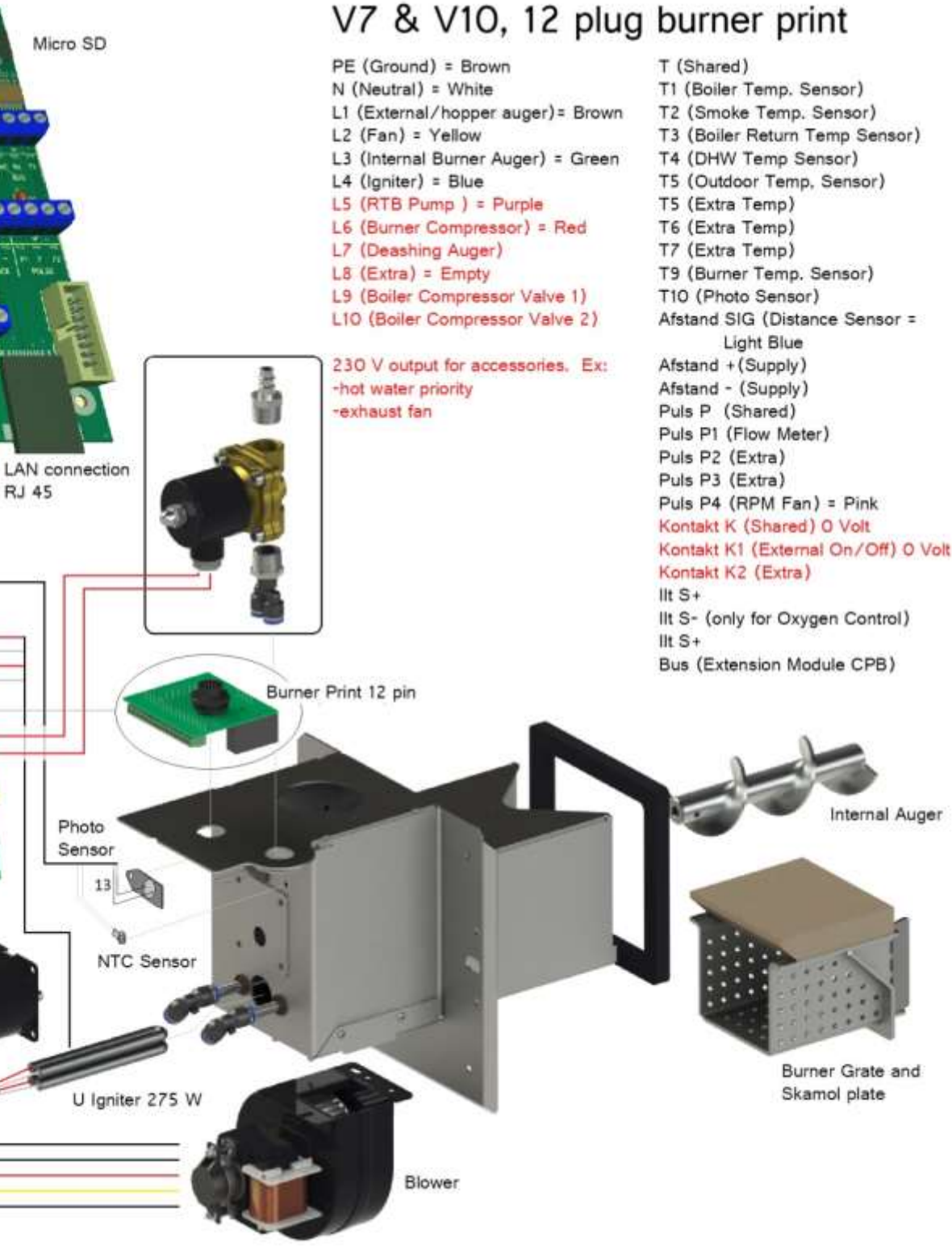


WIRING DIAGRAM:

There may be factory installed wiring on the outputs L5-L10. L5 may be factory fitted for the moving grate. L6 may be factory fitted for the compressor cleaning. Remove these if there is a need for other equipment on the outputs



V7 & V10, 12 plug burner print



PE (Ground) = Brown
N (Neutral) = White
L1 (External/hopper auger)= Brown
L2 (Fan) = Yellow
L3 (Internal Burner Auger) = Green
L4 (Igniter) = Blue
L5 (RTB Pump) = Purple
L6 (Burner Compressor) = Red
L7 (Deashing Auger)
L8 (Extra) = Empty
L9 (Boiler Compressor Valve 1)
L10 (Boiler Compressor Valve 2)

230 V output for accessories. Ex:
-hot water priority
-exhaust fan

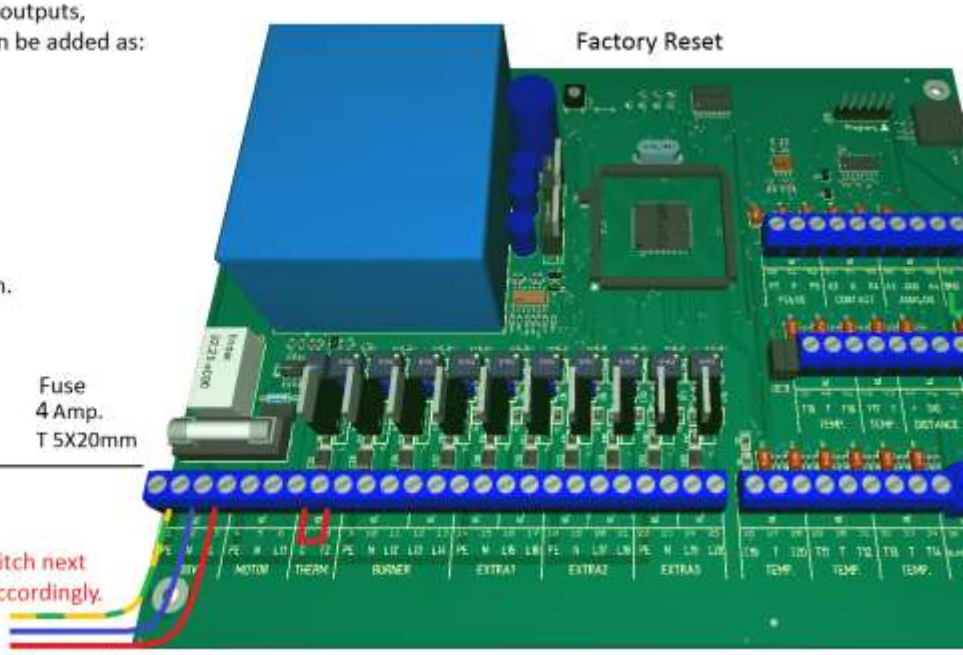
T (Shared)
T1 (Boiler Temp. Sensor)
T2 (Smoke Temp. Sensor)
T3 (Boiler Return Temp Sensor)
T4 (DHW Temp Sensor)
T5 (Outdoor Temp. Sensor)
T5 (Extra Temp)
T6 (Extra Temp)
T7 (Extra Temp)
T9 (Burner Temp. Sensor)
T10 (Photo Sensor)
Afstand SIG (Distance Sensor = Light Blue
Afstand +(Supply)
Afstand - (Supply)
Puls P (Shared)
Puls P1 (Flow Meter)
Puls P2 (Extra)
Puls P3 (Extra)
Puls P4 (RPM Fan) = Pink
Kontakt K (Shared) 0 Volt
Kontakt K1 (External On/Off) 0 Volt
Kontakt K2 (Extra)
Ilt S+
Ilt S- (only for Oxygen Control)
Ilt S+
Bus (Extension Module CPB)

WIRING DIAGRAM:

EXT. module for V. 7 and 10 controller.

By adding more in and outputs,
optional equipment can be added as:

Vacuum transport.
Compressor cleaning.
O_2 controller.
Hot water priority kit.
Solar heating.
Exhaust fan.
Weather compensation.
Distance sensor.
And more.



230 or 110 Volt.
Important: Set switch next to power supply accordingly.

1. PE. GND.
2. N. Power supply 230/110 Volt.
3. L. Power supply 230/110 Volt.

Output's:
4. PE GND.
5. N. Out.
6. L 11. Out.

7.] Connected.
8.]

9. PE GND.
10. N. Out.
11. L 12. Out.
12. L 13. Out.
13. L 14. Out.
14. PE GND.
15. N. Out.
16. L 15. Out.
17. L 16. Out.
18. PE GND.
19. N. Out.
20. L 17. Out.
21. L18. Out.
22. PE GND.
23. N. Out.
24. L 19. Out.
25. L 20. Out.

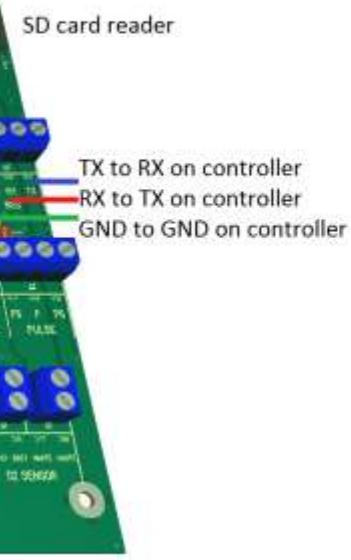
Input's:
26. Temp. 19 input.
27. Temp. common.
28. Temp. 20 input.
29. Temp. 11 input.
30. Temp. common.
31. Temp. 12 input.
32. Temp. 13 input.
33. Temp common.
34. Temp. 14 input.

35. Lambda sensor Black.
36. Lambda sensor Grey.
37. Lambda sensor White.
38. Lambda sensor White.

39. Temp. 15 input.
40. Temp. common.
41. Temp. 16 input.
42. Temp. 17 input.
43. Temp. common.
44. Distance.
45. Distance common.
46. Distance.
Input's:

Input's:
47. Pulse 5.
48. Pulse common.
49. Pulse 6.
50. Pulse 7.
51. Pulse common.
52. Pulse 8.
53. Contact 3.
54. Contact common.
55. Contact 4.
56. Analog 3.
57. Analog common.
58. Analog 4.

59. Bus GND. to Bus GND.
60. Bus RX. to TX.
61. Bus TX. to RX.
Communication to controller.



Requires from version 7.05 and 10.48 and up.
Installation:

Disconnect power supply to the controller.
Place the ext. module next to the controller.
Connect GND/RX/TX (Bus) to controller.
Notice RX/TX to be crossed.
Connect optional equipment, if any.
Connect module to power supply.

Turn on power to controller and ext. module.

In the controller go to menu 19, Extended setup.
Select the following:
Technical Setup = YES

Expansion module connected = YES

If the controller is connected to an expansion module, it will always read the oxygen level in the expansion module.
If the controller is not connected to an expansion module, it will read the oxygen level in the controller's input "O2"

If the controller is connected to an expansion module, it will read the distance sensor from either the controller input "DISTANCE" or from the expansion module's input "DISTANCE", depending on where the signal is strongest.

There are some lights in the expansion module:

Green light (Power) when the power is on.
Red light (ERROR) if there is no communication.
Yellow light (communication) if there is communication with a controller print.
Blue light (SD-card is being read) is on, while loading the program from the SD-card. When loading is complete, the blue light will switch off again.

ELECTRICAL CONNECTION DIAGRAM:

Overview of connectivity

	IN	OUT	FUNCTION
230	PE-N-L		230 Volt AC
SAFETY THERMOSTAT	L-L		Safety thermostat cutoff
MOTOR		PE-N-L1	External auger
BRÆNDER		PE-N-L2	Fan
BRÆNDER		PE-N-L3	Internal auger
BRÆNDER		PE-N-L4	Ignition
EKSTRA 1		PE-N-L5	Circulation pump, can be set to other equipment
EKSTRA 1		PE-N-L6	Compressor cleaning, can be set to other equipment..
EKSTRA 2		PE-N-L7	Optional output for equipment.
EKSTRA 2		PE-N-L8	Optional output for equipment.
EKSTRA 3		PE-N-L9	Optional output for equipment
EKSTRA 3		PE-N-L10	Optional output for equipment.
BUS	GRD, TX, RX,		Expansion module
ILT	V1, V, V2		O2 controller
CONTACT	K-K1		External ON/OFF
CONTACT	K-K2		Free
PULS	P-P1		Flow meter system
PULS	P-P2		Flow meter solar heating
PULS	P-P3		Free
PULS	P-P4		Fan RPM
DISTANCE	-, SIG, +		Distance sensor for hopper
LAN	RJ45		Internet connection
TEMP.	T- T1		Boiler temperature
TEMP.	T – T2		Smoke temperature
TEMP.	T – T3		Boiler return temperature
TEMP.	T – T4		DHW temperature
TEMP.	T – T5		External temperature
TEMP.	T – T6		Free
TEMP.	T – T7		Free
EKS / FOTO	T – T9		Temperature sensor burner
EKS / FOTO	T-T10		Photo sensor burner

OPTIONAL EQUIPMENT:

The controller supports the following equipment. Aids in performing adjustments, cleaning, and knowledge.

Smoke Temp. Sensor:
Reads the current smoke temperature in the display.

Extension module:
Get additional 10 ouputs for equipment.
Prepared for O2 control.

O2 Control Kit:
Regulates the amount of oxygen in the flue gas. Regulates the quantity of wood pellet and air according to the desired O2%.

Hot Water Priority Kit:
Produces hot water only when it is needed. Closes hot water tank, when the house is heated. Kits available with either 2 or 3 way motorized valve.

Compressor Cleaning System:
Cleans the burner head efficiently with high pressure. With this kit you need to use your own compressor.

Compressor Cleaning L:
Cleans the burner head efficiently with high pressure. “Low noise” compressor included..

Solar Heating
Use the pellet burner controller to run your solar system.

External Temp. Sensor:
Stops burner through an external temperature sensor.

Lambda sensor:
For the extension module.

Flow Sensor Kit:
Reads the system flow in the display and calculates the current power consumption for the house

Distance Sensor for Hopper:
Monitors the pellet level in a hopper and reports it in the controller.

Exhaust Fan:
Need greater chimney draft? The fan’s RPM can be synched with the burner's power output. Can be connected to the burner controller..

Weather Compensation:
Maintains a high boiler temperature while adjusting the house inlet temperature in relation to the outdoor temperature.

Wireless thermostat:
Stops the pellet burner with thermostat. Gives a smooth transition to summer time.

INTERNET CONNECTION:

The web-based controller can be updated automatically from the Internet. Operating data can also be uploaded to www.stokercloud.dk

How to get the controller on the web:

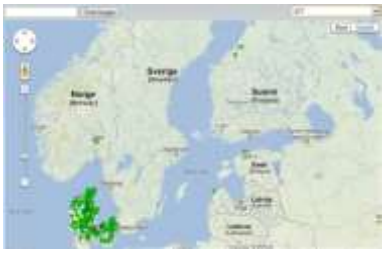
1. Connect the controller to your router through an RJ45 cable. Since this is a direct cable connection no passwords, etc. is required. Once connected, a small icon will appear on the screen indicating that the controller is online.

If you do not have the possibility of a direct cable connection, these adapters picture on right, can be used. They can establish a connection to your router through your household power cables. This provides an easy PLUG and PLAY solution.

2. Find your control number and password under the "system" in the controller
Gå på **www.stokercloud.dk** og find styringen på scroll down i toppen af siden.
Alternativt tast din styrings nummer i søge feltet.

3. Go to www.stokercloud.dk and find your controller in the drop-down at the top of the page. Or type your control number in the search box

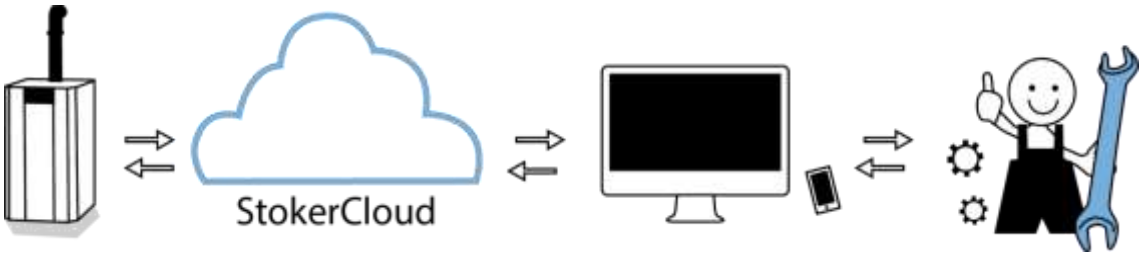
4. LOG IN, and follow the instructions.



5. Enter your personal information. New user name and new password.

CLOUD SERVICE:

If your burner is online via our website www.stokercloud.dk we can help you keep an eye on your system. If something unexpected happens, such as too many ignitions, unstable operation, improper PI regulation etc., we will have the opportunity to help you ONLINE.



How it works:
NBE observes abnormalities on your graphs.
You will be contacted by E-mail, where we ask your permission to make changes.
NBE will assess your graphs and the burner reaction pattern, and make adjustments based on the observations.
You can always see the changes in your LOG.

- After adjusting, it should look like this ...

NBE's Cloud Service ensures:
Fewest possible number of electrical ignitions.
Best possible PI regulation.
An optimized system for your house.
Lower wood pellet consumption.
Security in everyday life.
The latest updates to the controller.

FIRST TIME START UP:

Once the system is assembled, filled with water, and power is connected to the system a few basic adjustments to the burner is required.

1. Fill the auger with pellets by force starting the auger either through the controller or directly via a 230V connection.

2. When the augur appears full, run for an additional 15 min. to ensure correct weighing later.

3. Activate the 6 min. test run in the controller and collect the dispensed pellets with a plastic bag.

4. Using a kitchen scale, weigh the pellets from the test run and enter the amount into the controller under "Auto calculation“. Repeat again after 7 days!

5. Adjust minimum output as low as possible, typically 10% of the burner's rated output (i.e. if 20kW, set to 2.00kW). If the chimney draft is high, adjust the minimum output up until you have a stable flame at 10% power.

6. Once the burner is activated an ignition will be made. After approx. 20 minutes the burner will reach a nominal output (100%). If necessary lock the burner output at 100%. Now you can perform an evaluation as to whether the fan is providing suitable supply of air to the flame. If necessary, adjust in the fan menu

The flame at 100% should fill the entire width of the grate, have redish spikes, and reach the opposite wall…

7. Lock the burner to 50% power. Wait 5 minutes for the flame to stabilize. Again, assess fan performance in relation to the flame

The flame at 50% should be approx. 10 cm out of the burner and is yellowish in color.

8. Lock the burner to 10% power. Wait 5 minutes for the flame to stabilize. Assess fan performance in relationship to the flame.

The flame at 10% should be small and short

The photo sensor reading may fluctuate, however, it should not have a 0 LUX reading for a period >10 sec. If the chimney draft is too high, increase the minimum effect of the burner to increase flame size.

CLEANING THE BURNER/BOILER:

Cleaning should be carried out regularly and/or as needed. There is a big difference in the frequency of maintenance required from system to system. The setup, adjustment, and wood pellet quality play an important role on how frequent maintenance should be performed.

The table is only a suggestion and applies only to the BS1016, BS2030 and BS4050 boilers!

When needed	7 Days	14 days	30 days	1/2 annually	annually	
x	x	x	x			Cleaning cinders out of burner head.
			x			Cleaning under the combustion grate for dust and cinders
				x		Cleaning photo sensor from soot and dust.
				x	x	Cleaning burner fan from dust
x				x		Cleaning boilers, flues, and take semi cleaning out.
				x	x	Emptying the last smoke channel for ashes
x			x	x		Empty the ash pan, typically after 1,000-2,000 kg pellets
x					x	Check gaskets / replace worn gaskets.
x						Adjusting the burner. (weighing the pellets)
x	x	x				Filling the hopper.
				x	x	Emptying the hopper, dust and fines removed.
					x	Chimney sweeper

Turn off the burner in connection with cleaning.

Turn off the controller and allow to cool for approx. 5 min. Once the burner is completely turned off, it is ready for cleaning. Unplug the burner, remove the shield, drop shaft, and detach the burner from the boiler so work can be easily performed.

Boiler.

All surfaces inside the boiler must be brushed clean from any deposits and the ash can must be emptied. When empting the ash can, pay special attention to any build-up of ash in the rear smoke chamber and flue, since the Chimney Sweeper may not always be removing the ash from the chimney flue

! Never dispose of hot ashes in the trash, but let it cool in a metal bucket. Hot ashes can start burning when it gets oxygen (air).

Burner head.

Remove any ash or cinders from the grate. Remove any pellet remnants under the burner grate. Wipe the photo sensor clean. When re-inserting the photo sensor, ensure that the sensor points towards the combustion grate. Ensure that there is nothing lodged in the fan and that it can rotate freely.

Hopper.

Since pellets naturally contain dust, you should periodically empty the hopper completely. The more dust that is present in the hopper, the less the auger will dispense, and the more unstable the dosing. The boiler will go out of adjustment with greater risk of downtime. How often one should empty the hopper depends greatly on the design and quality of the pellets you use.

! Put 1 dl cooking oil or similar into the hopper each time it is emptied (poured over the last pellets) and the hopper will automatically empty the sawdust.

Start-up after cleaning.

Once the pellet boiler is reassembled, turn on the controller and the burner will start itself up.

! **Remember to reattach the shield so that the temperature reading on the burner is correct**

TROUBLESHOOTING:

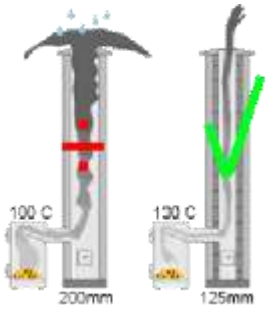
Problem	Mulig årsag	Mulig løsning
Alarm RPM	RPM sensor defective.	Change the fan.
		Change to % regulation at the fan.
No power to the controller	Defective fuse in the controller.	Skift sikringen til en ny.
	Safety thermostat not active.	Genindkoble ved et hårdt tryk på den røde knap.
	The controller has been overvoltage. .	Send controller in for repair.
The burner deactivate residual current protection	Electric ignition is faulty	Change the electric ignition to a new.
	Current leak in a component..	Note when RCD deactivate, replace the component.
	Cables exposed.	Check cables, insulate them if possible.
Too high pellet consumption	Lean burning.	Make a new adjustment of the burner.
	Too high chimney draft.	Install draft stabilizer in the chimney.
	Uninsulated pipes in the installation.	Insulate with pipe insulation.
Too many electric ignitions	Flow in the system is fluctuating.	Set the pressure controlled circulation pump to fixed pressure.
	External thermostat unstable.	Set ”External wait” up in the controller.
Unburnt pellets in the ash.	Lean burning.	Make a new adjustment of the burner..
	The grate is placed incorrectly.	Mount it correctly.
	Too many pellets on the grate.	Make a new adjustment of the burner.
	The fan is adjusted too high.	Make a new adjustment of the burner.
	Too high chimney draft.	Install a draft stabilizer in the chimney.
Cinders on the grate .	Blower cleaning is not sufficient.	Adjust the fan % up to clean, and the time between the down.
		Clean the grate mechanical more frequently.
	Poor quality pellets.	Change supplier.
		Mount compressor cleaning.
		Change the grate to a model that is more open.
	Fat combustion.	Adjust the fan up at 10, 50 and 100 % power
		Adjust the burner power down in ”auto calculation”.
The boiler condensates	Too low chimney temperature.	See page 27 about flue gas condensation.

FLUE GAS CONDENSATION:

When a boiler has an extremely high efficiency (for example > 93%), the flue gas temperatures exiting the boiler are very low. As a consequence of this high efficiency and low chimney temperature relationship, proper precautions must be observed to avoid condensation from developing in the chimney. Leaving condensation untreated will risk the development of soot in the chimney, corrosion in your boiler, as well as possible loss of warranty.

Note: even if there is water in the boiler it may be due to condensation in the chimney.

Things that can prevent condensation in the boiler and chimney.



1. High chimney> 5m.

Provides a good draft in all conditions.

2. Small clearing in the chimney 125mm-150mm.

Provides better flow, and can "carry“ out more moisture.

3. Short un-insulated smoke pipe 70C degrees.

10 degrees up in the boiler temperature gives 10 degrees more smoke temperature.

6. Suitable return temperature> 55C degrees.

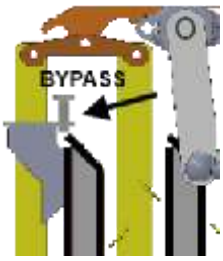
Hits the smoke boiler surfaces under 47C degrees, it starts condensing.

7. Open bypass in the boiler.

Release the smoke before the last smoke cooler, 15C degrees increase in temperature of the smoke, only costs approx. 1% in efficiency.

8. Heated boiler room.

Lowers cooling of the boiler and smoke pipe and provides draft stabilizer more hot air to work with.



9. More oxygen in combustion.

Increases air flow in the boiler, and carries more moisture, 1% more oxygen costs approx. 0.5% in efficiency.

10. Remove the retarder.

The retarder decreases resistance of the boiler, and get a bad chimney to work better. The gas temperature typically increases to approx. 100 degrees. The burner should be basic readjusted after retarder is removed.

11. Keep the heat on the boiler continuously.

When using DHW priority on controller, and the boiler starts from cold each time it starts The boiler is not to dried out between each start.

12. Mount electric exhaust fan to chimney.

Helps the flow the right way, from CHIP 6.82 can exhaust fan be connected directly to the controller.

GLOSSARY:

for the controller from version 7.0594

Menus marked with ! are the additional parameters that appear when you enable Extended Setup Menu 19.

MENU 1- BOILER

Boiler – in this menu everything regarding the boiler can be adjusted

Wanted temperature – Specify the desired boiler temperature. The burner will adjust its output to the setpoint can be held.

Difference Under – Specify the temperature difference under the wanted temperature before restarting the burner.

Difference Over – Specify the temperature difference over the wanted temperature before stopping the burner.

Night reduction – Specify the reduction of boiler temperature at night, when timer function is used for night reduction.

External Stop Temperature – Stops the burner when the external temperature sensor (T5) achieves this temperature (0 is disabled)

External Stop Difference – Starting difference, after stopping from external temperature (T5).

Timer Active – Specify whether timer function is active for heat production.

Timer periods – Specifying timer periods, where boiler heat production is OFF, ON, or lowered at night.

! **Alarm – Max. Drop shaft temperature** – The max. permitted shaft temperature before the burner is stopped and cooled down.

Alarm – Min. Boiler temperature – If the boiler is operating under this value and no temperature increases occur within 10 minutes, the burner will be stopped.

Alarm Output – Specify which output that is used for alarm.

External contact active – Is external contact active?

Reaction ON after – Minutes the external contact must be activated (ON), before the burner starts.

Reaction OFF after – Minutes the external contact must be deactivated (OFF), before the burner stops.

MENU 2- DHW

DHW – In this menu, everything concerning the domestic hot water tank can be adjusted

Wanted temperature – Specify the desired DHW temperature.

Difference under – Set the temperature drop from the desired DHW temperature at which the controller will switch to DHW priority to reheat tank.

Remain in DHW production – The time the DHW valve remains in DHW position, after the DHW temperature has been reached. Only if heat is needed in the tank.

! **Output DHW –** Specify the output relay the controller will use for DHW operation.

Timer active – Specify whether timer function is active for DHW production.

Timer periods – Specifying timer periods, where DHW production is OFF or ON.

MENU 3 - REGULATION

Regulation – in this menu, everything concerning the PI regulation can be adjusted.

Temperature regulation gain P – Note: Responds to boiler temperature change. The higher the value, the greater the response.

Temperature regulation gain I – Note: Responds to boiler temperature differences over time. The longer the time, the greater the response.

Power increase / minute – Specify the maximum output increase per minute after the start-up.

Min. power – Minimum power in percent. Not valid for DHW mode, which is set in the parameter Min. Power at DHW – see 3.6.

Max. power – Maximum power in percent. Not valid for DHW mode, which is set in the parameter Max. Power at DHW – see 3.6.

DHW regulation gain P – Response to DHW temperature change. The higher the value, the greater the response.

DHW regulation gain I – Response to DHW temperature difference over time. The higher the value, the greater the response.

Setpoint boiler addition – Setpoint at DHW production is the wanted DHW temperature plus this addition.

Min. Power – Specifying min. output doing DHW, can be increased DHW production is too slow.

Max power at DHW – Specify the max. Burner output during DHW operation. This can be reduced if the boiler overheats doing DHW operation.

MENU 4 – WEATHER

Weather – In this menu, everything concerning weather compensation can be adjusted. Ex. Operation via the outdoor temperature.

Active – Activate weather compensation?

Mean period temperature – The measured temperature used, is the average temperature over this period of time (hours).

Use T5 temperature sensor – Specify if the temperature is to be read from a local sensor or the internet.

Chill factor weight – Weight (%) of registered chill factor. Use for example if exposed to abnormal wind conditions.

Valve at DHW production – Valve reaction at DHW production. If the DHW is placed on the weather compensated circuit, choose 100 open (open valve)

!

Outlet house pump – Specify which output is to be used for the house pump.

Regulating valve open – Specify which output on the controller to use for opening regulating valve.

Regulating valve close – Specify which output on the controller to use for closing regulating valve.

Gain P – Specify the response to house temperature changes. The higher the value, the greater the response.

Measured temperature 1 – Specify the temperature for regulation at point 1. At this temperature the burner will stop.

Measured temperature 2 – Specify the temperature for regulation at point 2. At this temperature the burner will stop.

Measured temperature 3 – Specify the temperature for regulation at point 3. At this temperature the burner will stop.

Measured temperature 4 – Specify the temperature for regulation at point 4. At this temperature the burner will stop.

Measured temperature 5 – Specify the temperature for regulation at point 5. At this temperature the burner will stop.

Measured temperature 6 – Specify the temperature for regulation at point 6. At this temperature the burner will stop.

Measured temperature 7 – Specify the temperature for regulation at point 7. At this temperature the burner will stop.

Forward temperature 1 – Enter the wanted temperature for regulation at point 1.

Forward temperature 2 – Enter the wanted temperature for regulation at point 2.

Forward temperature 3 – Enter the wanted temperature for regulation at point 3.

Forward temperature 4 – Enter the wanted temperature for regulation at point 4.

Forward temperature 5 – Enter the wanted temperature for regulation at point 5.

Forward temperature 6 – Enter the wanted temperature for regulation at point 6.

Forward temperature 7 – Enter the wanted temperature for regulation at point 7.

Max. Power 1 – Enter the wanted power for regulation at point 1.

Max. Power 2 – Enter the wanted power for regulation at point 2.

Max. Power 3 – Enter the wanted power for regulation at point 3.

Max. Power 4 – Enter the wanted power for regulation at point 4.

Max. Power 5 – Enter the wanted power for regulation at point 5.

Max. Power 6 – Enter the wanted power for regulation at point 6.

Max. Power 7 – Enter the wanted power for regulation at point 7.

MENU 5 - 02 CONTROL

O2 Control – In this menu, everything concerning the 02 control can be adjusted.

O2 control method – Specify if 02 control is active (ON), not active (OFF) or 02 is shown but not regulated (SHOW).

Wanted O2 at 10% power – Specify the desired % oxygen in the boiler at 10 % power.

Wanted 02 at 50 % power – Specify the desired % oxygen in the boiler at 50 % power.

Wanted 02 at 100 % power – Specify the desired % oxygen in the boiler at 100 % power.

O2 probe calibration – Start calibration of 02 probe

Wood pellet blocking time – Specify the number of minutes prior to blocking the pellet fuel when actual 02 % < 2 % lower than the desired 02%

Updating time – Specify how often the 02 controller is allowed to make an adjustment on the flower speed and the fuel.

!

Regulation gain P – Specify how much the controller should respond to temperature changes.

Regulation gain I – Specify how much the controller should respond to time away from the desired oxygen content.

Correction fan 10 % - Specify how much the 02 controller can regulate the fan speed at 10 % power (plus, minus).

Correction fan 50 % - Specify how much the 02 controller can regulate the fan speed at 50 % power (plus, minus).

Correction fan 100 % - Specify how much the 02 controller can regulate the fan speed at 100 % power (plus, minus).

Regulation pellets gain P – Specifies gain for proportional oxygen regulation of wood pellets.

Regulation pellets gain I – Specifies gain for integrated oxygen regulation of wood pellets.

02 sensor type – Specify type of attached lambda sensor

02 sensor on expansion module – Is the oxygen sensor (lambda sensor) connected to an expansion module?

MENU 6 – CLEANING

Cleaning – In this menu, everything concerning cleaning can be adjusted.

Time between – Specify how often the fan should increase in speed to clean out the burner grate.

Time – Specify the duration of time desired for regular cleaning by the fan. Note: the fan will speed up to clean the grate.

Speed – Specify the fan speed to be used during regular cleaning.

Cleaning after – Specify the interval (lbs) between compressor cleaning. Note: A run period will always end with a cleaning.

Valve operating period – During this period, the air valve repeatedly opens for 0,2 sec and closes for 1,8 seconds.

Valve pulse length – Specify the air valve opening time of the total period of 2 seconds.

Stop pellets for – Specify the time desired to pause pellet dosing prior to cleaning. Note: ensures the wood pellets burn out.

Fan speed – Specify the fan speed desired when performing compressor cleaning.

Output valve – Specify the output relay in the controller that the valve is connected to.

!

Outlet boiler valve 1 – Specify the output for cleaning system valve 1. Activates half the time of compressor valve.

Outlet boiler valve 2 – Specify the output for cleaning system valve 2. Activates half the time of compressor valve.

Outlet ash auger – Activates the ash cleaning system. Runs 2 minutes for each 50 lbs pellets consumed.

Measure compressed air on T7 – Specifies if T7 is used for measuring of compressed air. If not, T7 can be used as temperature sensor input.

MENU 7 – HOPPER

Hopper – In this menu, everything concerning the wood pellet hopper can be adjusted.

Distance top – Enter the distance from the sensor to the top of the pellets when the hopper is full. (minimum 2 in).

Distance bottom – Enter the distance from the sensor to the bottom of the pellets (cm) when the hopper is empty.

Automatic fill – Enter the number of lbs of pellets in the hopper when full. Note: values will be put into hopper content automatically.

Hopper content – Enter the hopper content (lbs). Note: this values is used for counting down the amount of pellets.

Minimum hopper content – Specify the minimum content of the hopper. An info-message is issued when this level is reached.

MENU 8 - FAN

Fan – In this menu, everything concerning the fan can be adjusted.

Speed at 10 % power – Fan speed at 10 % power must be adjusted according to the fuel, chimney draft, and back pressure in the boiler.

Speed at 50 % power – Fan speed at 50 % power must be adjusted according to the fuel, chimney draft, and back pressure in the boiler.

Speed at 100 % power – Fan speed at 100 % power must be adjusted according to the fuel, chimney draft, and back pressure in the boiler.

Use fan RPM – Select regulation of fan speed in Round Per Minute (RPM).

Use fan RPM alarm –

Exhaust fan: Speed at 10 % power – Wanted speed on exhaust fan, when the burner has 10 % output.

Exhaust fan: Speed at 50 % power – Wanted speed on exhaust fan, when the burner has 50 % output.

Exhaust fan: Speed at 100 % power – Wanted speed on exhaust fan, when the burner has 100 % output.

Controller output exhaust fan – Specify which output that is used for exhaust fan.

MENU 9 - AUGER

Auger – In this menu, everything concerning the external auger can be adjusted.

Force run external auger – Enter the number of seconds used for forced-running of the external auger. Use for auto calculation or for refilling the auger.

Balancing – Do you want to measure external auger capacity for 6 minutes?

Auger capacity/6 min – Used to calculate the wood pellet quantity at 10 % and 100 % power.

Auto combustion – Choose if the controller calculates external auger time?

Auger feed time 10 % - Enter the auger running time at 10 % power (two decimals), only active if auto combustion is OFF.

Auger feed time 50 % - Enter the auger running time at 50 % (two decimals), only active if auto combustion is OFF

Auger feed time 100 % - Enter the auger running time at 100 % (two decimals), only active if auto combustion is OFF

Min. output at 10 % – Minimum output on the burner. Must be adjusted according to the size of the burner and the draft in the chimney.

Max. Output Btu – Note: the nominal effect of the burner must match the boiler's and burner's rated output. Used in auto combustion.

Auger feed times/minute – Specify number of times/minute you would like the internal auger to e dosing pellets. Note: does not change the quantity.

Minimum pellets dose – Specify the minimum pellets dose each time the external auger feeds pellets.

Menu 10 - Ignition

Ignition – In this menu, everything concerning the ignition can be adjusted.

Pellets for ignition – Specify the amount of wood pellet to be used during ignition. Note: less quantity less smoke during start-up.

Ignition power – Specify the desired electrical load of the igniter. Note: the lower the load %, the longer the durability.

Fan speed start – Specify the desired fan speed at the start of an ignition cycle.

Fan speed middle – Specify the desired fan speed in the middle of an ignition cycle.

Fan speed end – Specify the desired fan speed at the end of an ignition cycle.

Max Time – Specifying the maximum time an electrical ignition can take. Note: the fan speed will change over this period of time.

Preheating – Specify the preheating time desired for the igniter. Note: specifies the time prior to the blower cycle.

Exhaust fan speed – Specify the amount of wood pellet to be used during ignition.

Number of ignitions – Specify the number of ignitions made. Can be cleared using the function - Reset ignition data

Reset ignition data – Reset the ignition counter. Ex. Use when replacing the igniter Note: A typical system should ignite 1000 times/year.

Menu 11 - Pump

Pump – In this menu, everything concerning the circulation pump can be adjusted.

Start temperature – Specify the pump's start temperature. Note: only active if the burner is in operation.

Stop temperature – Specify the pump's stop temperature. Note: only active if the burner is stopped.

! **Flowmeter liter/pulse –** Specify how many liters the flowmeter provides per pulse.

Flowmeter pulse frequency – Pulse frequency from the flowmeter at a flow of 1 liter per minute. Only used if Flowmeter liters/pulse is set to 0.

! **Output pump –** Specify which output that is used for boiler pump.

Menu 12 – Solar heating

Solar heating – In this menu, everything concerning solar heating can be adjusted.

Wanted sunpanel temperature – Specify the wanted sunpanel temperature. Regulated by regulation of pump speed.

Pumpstart temperature difference – Specify temperature difference between sunpanel and DHW, where the pump must run.

Pumpestop temperature difference - Specify temperature difference between sunpanel and DHW, where the pump must stop.

Pump minimum speed – Specify minimum pump speed. By specifying 100 %, the pump speed is not regulated.

DHW maximum temperature – Specify maximum DHW temperature. When this temperature is reached, the excess heat valve is opened.

Output sun pump – Specify the output for sunpanel pump. By specifying OFF, all solar heating is turned OFF.

Output sun excess heat – Specify the output for excess heat valve. By specifying OFF, excess heat is not used.

Start boilerpump at surplus - Specifies whether the boiler pump should run when solar heating is producing excess heat.

! **Input sun collector** – Specify the input for suncollector temperature.

Input sun collector 2 – Specify the input for extra suncollector temperature. Only relevant for eat/west sun collectors.

Input DHW bottom temperature – Specify the input for DHW bottom temperature. By specifying OFF, the temperature sensor at input T4 is used.

Input excess heat temperature – Specify the input for excess heat temperature. By specifying OFF, the temperature sensor, the temperature sensor at input T3 is used.

Flow liter/pulse – Specify how many liters equals one pulse from the flowmeter.

Menu 13 – Chart view setup

Chart view setup – In this menu, charts of burner operation can be selected, including the color used. Choose whether the curve should be shown by pressing the MENU bottom (change between NO and YES). Choose color by pressing the → bottom.

Boiler temperature
Smoke temperature
Return temperature
DHW temperature
Extern temperature
House inlet temperature
Sun collector temperature
Distance measure
! **Light**
Shaft temperature
Power consumption mA
O2%
Flow 1
Flow 2
Flow 3
Flow 4
Power %
Power Btu
02 Reference
Boiler temperature reference
Extern temperature
DHW reference
House inlet reference

Menu 14 – Chart view

Chart view – In this menu, the burner's operational charts can be viewed.

Menu 15 – Consumption

Consumption – In this menu, pellet consumption charts can be viewed.

Menu 16 – Download

Download – In this menu, you can check if there are any updates. Note: requires an internet connection.

Menu 17 – Event log

Event log – In this menu, you can check if there has been any changes made overthe past 48 hours.

Menu 18 – Setup

Setup – In this menu, everything concerning the settings can be adjusted. Ex. Internet connection, passwords etc.

Background picture – Select a picture to be background picture.

! **Shaft temperature sensor type –** Specify the sensor type used for shaft temperature measurement. Select NTC or PTC.

Smoke temperature sensor type – Specify the sensor type used for smoke temperature measurement. Select NTC or PT1000.

Sleep light level – Light level in sleep mode after 5 minutes inactivity. 5 means full light, 0 means light off.

! **Display color scheme –** Specify the color scheme of the TFT display. Choose between 2011 and 2013 (written on the display after Copyright)

RTC tod – specify current time.

RTC date – specify current date

RTC month – specify current month

RTC year – specify current year

Serial number – Here you can see the serial number of the controller, which also functions a user name when you connect the boiler to StokerCloud the first time.

Password – This password is the password you need to connect the boiler to StokerCcloud.

IP Address – Here you can see the IP address of the controller.

MAC Address – Here you can see the Mac address of the controller.

Menu 19 – Extended setup

Extended setup – In this menu, special technical items can be adjusted.

Technical setup – In technical mode, all data can be changed. Otherwise, some critical data are not accible. 30 miuntes timeout.

! **Expansion module connected -** If an expansion module is connected, another 10 outputs and 18 inputs are available.

Language – Change controller language. The program with the selected language is downloaded from the internet.

Menu 20 – Manual control

Manual control – In this menu, you can activate various outputs manually on the controller. Ex. Used when you want to test equipment.

L1 External auger

L2 Fan

L3 Internal auger

L4 Ignition

L5 Output pump

L6 Output valve

L7 Outlet ash auger

L8 ----------

L9 Outlet boiler valve 1

L10 Outlet boiler valve 2

WARRANTY:

All products purchased from NBE is covered by the current Danish Purchasing Law. This includes 6 months warranty on the products valid from the date of receipt. A 2 year warranty is granted with the completion of the Warranty Registration.

Note: Electrical Igniters are not covered under the warranty as they are a wearable part.

The warranty only covers manufacturing and material defects. In case of product failure of the system when under warranty, NBE will repair the spare part at no charge to the buyer. Buyer will be responsible for the installation or replacement of the part. If NBE offers repair of the defective part, the purchaser shall send the part to NBE for repair. NBE will return the part once repaired. Guarantee shall be invalid if product failure is due to circumstances caused by the buyer; either by accident and/or abuse of the product, inadequate cleaning, chimney conditions, as well as circumstances where NBE has no influence. In addition, the warranty is invalid due to misuse of the burner- fx. using fuel that is not approved by NBE The warranty does not cover parts such as the electrical igniter. The buyer is obligated to check the goods immediately upon receipt. If the buyer declares that the delivery was inadequate or defective, the customer must immediately and without delay make a written claim with NBE. Returns are only made by agreement with NBE. To the extent that NBE is liable to the purchaser, NBE's liability is limited only to direct loss and not to damages incurred by connected equipment and/or indirect damage, loss of earnings, operating losses, connection costs, etc.

Responsibilities: NBE assumes no responsibility as a result of the purchaser's legal relations with third parties. All orders are accepted subject to force majeure, including war, civil unrest, natural disasters, strikes and lockouts, failing supplies of raw materials, fire, damage of NBE or its supplier network, lack of transport opportunities, import / export prohibitions or any other event which prevents or restricts NBE's ability to deliver. NBE has in cases of force majeure, the right to cancel the transaction or any part thereof, or to deliver the agreed product as soon as the obstacle to normal delivery has lapsed. In cases of force majeure, NBE will not be held responsible for any losses incurred by the purchaser due to non-delivery. NBE will not be held responsible for any changes and/or faults related to price changes, sold out items or changes to specifications in the product manual. It is the buyer's responsibility to register the equipment to the appropriate authorities. If any disputes arise between the authorities and the purchaser, NBE will be held harmless from any

The following can be delivered upon request:
- Exception of the expansion by Labor Inspectorate.
- Chimneys endorsements.
- Approval of Technology Institute (DTI).
- Print charts.

Material is also available on www.nbe.dk

CE DECLARATION OF CONFORMITY

EC DECLARATION OF CONFORMITY

No. : 0104-2013

The undersigned, representing the following manufacturer

manufacturer : NBE production A/S
address : Brinken 6-10, DK9750 Oester Vraa, Denmark

or representing the manufacturer's authorized representative established within the Community (or the EEA) indicated hereafter

authorized representative :
address :

herewith declares that the product

Product identification : Pellets burner: NBE; BioPel; BMHT; Woody; Scotte; Scotte Plus; Boink; Bio Comfort; Kedel,

is in conformity with the provisions of the following EC directive(s)
(including all applicable amendments)

Reference n °	Title
EN 303-5 2012	*Europe Norm*
2006/95-EC	*Low Voltage Directive*
2004/08-EC	*EMC directive (EMCD)*
97/23/EEC	*Pressure Equipment Directive*
2006/42-EC	*Machinery directive*
Arbejdstilsynets bekendtgørelse	*Nr. 612*

and that the standards and/or technical specifications referenced overleaf have been applied.

Last two digits of the year in which the CE marking was affixed: …13

Jannich Hansen Oester Vraa **01/04/2013**

Jannich Hansen

(signature)

NOTES:

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

Date	
Weighing	g
kW low	kW
kW high	kW
Fan low	%
Fan middle	%
Fan high	%
Note:	

NBE

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EN303-5 2012 Klasse 5
godkendt ved DTI .
Godkendt til trykekspansion.
Energi mærket AA.

Producent:
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