UK

RTB

RTB PHOENIX v16.0 MANUAL

CONTENTS:

Dear Customer.

Thank you for purchasing this NBE product which 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 of the equipment. 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 on www.nbe-global.com.

Note: Help text for all menus parameters can be accessed by selecting **?** in the v16 controller. The **?** Can be found when selecting the values for each given parameter in the controller.
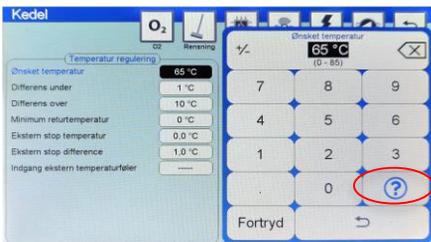
! **Save this manual, so you always have it available if you ever need it.**

WARNINGS:

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 properly securing the ash can and lid.

The system is provided with an electrical current of 110/230V-50/60 Hz. An improper installation or improper repair can cause life-threatening electrical shock. Electrical connections must be performed by a person with the right skills and training. Performance of electrical installation must be carried out in COMPLIANCE with the relevant local rules.

Always disconnect the system from the electrical supply prior to starting maintenance or servicing work. The system must be connected to a seperate electrical circuit, which is equipped with the proper circuit breaker and earth leakage breaker.

The boiler must be mounted to a functioning chimney with addequate draft. 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 installing and / or repairing of the system. If in doubt, seek professional help.

As the control system is constantly being updated and new features / experiences are being added, it is the user's responsibility to keep the manuals and maintenance manuals updated.
New updated manuals can be downloaded from www.nbe-global.com

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

The system must be operated by skilled individuals.
Contact your dealer If you are in doubt as to the safe operational use of the boiler.

The tablet controller's menu structure supported by the help texts found in the tablet app itself. Due to continuous updates and new features, 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!

TECHNICAL DATA:
RTB PHOENIX BOILERS

Exhaust Fan with under pressure control

NBE V16 printboard with wifi module

Air compressor cleaning system (boiler)

7" capacitive touch screen

O2 sensor

Air compressor tank with air pressure sensor

10-100% stepless modulating burner with air compressor burner cleaning, air flow control, back pressure sensor, and burner/drop shaft temperature sensor

Air compressor

Ash can drawer system with ash can level sensor

Ash Extraction System

TECHNICAL DATA: RTB PHOENIX BOILERS

Product Name	RTB 10	RTB 16	RTB 30	RTB 50	RTB 80
Design Model	Phoenix	Phoenix	Phoenix	Phoenix	Phoenix
Nominal Performance	11 kW	17 kW	25 kW	48 kW	78kW
Minimum Performance	3 kW	5,5 kW	7,5 kW	14 kW	23 kW
Nominal Efficiency	93,9%	91,1%	91,4%	93,6%	93,6%
Minimum Efficiency	90,5%	92,4%	92,7%	94,6%	93,9%
Power Consumption (Nominal)	37W	40W	90W	168W	125W
Power Consumption (Minimum)	24W	20W	34W	82W	69W
EN303-5:2012 Klasse	5	5	5	5	5
Controller Version:	V16	V16	V16	V16	V16
Width (mm) (only boiler)	504	504	655	796	937
Depth (mm)	920	920	926	1192	1396
Height (mm)	1216	1216	1240	1443	1643
Chimney (mm)	100	100	130	150	180
Weight (kg)	222	222	280	470	785
Water volume (liter)	36	36	48	78	105
Ash can (liter)	31	31	38	60	60
Forward/Return/Filling	¾ "	¾ "	¾ "	1"	5/4"
Test # 300-ELAB-	2042	2045	2064	2179	2216

TECHNICAL DATA: RTB PHOENIX HOPPERS

Product Name	RTB Phoenix 300	RTB Phoenix 500	RTB Phoenix 700
SKU	901120	901220	901320
Design Model	PHOENIX	PHOENIX	PHOENIX
Estimated capacity (kgs)*	130 kgs	230 kgs	330 kgs
Capacity (liters)	200 l	350 l	500 l
Width	300 mm	500 mm	700 mm
Depth	1000 mm	1000 mm	1000 mm
Height	1448 mm	1448 mm	1448 mm
Height (w/lid open)	1915 mm	1915 mm	1915 mm
Weight	76 kgs	89 kgs	102 kgs
Compatible w/	RTB 10-30 Phoenix	RTB 10-30 Phoenix	RTB 10-30 Phoenix
*kilo capacity will vary depending on the density of the pellets			

Product Name	80x80 hopper	80x80 Extension	Double KIT for NBE hopper 80x80
SKU	300087	300085	300069
Compatible w/	All boilers	80x80	80x80 hopper
Estimated capacity (kgs)*	130 kgs	230 kgs	

BULK FEEDING:

Our auger and vacuum feeds systems makes it easy to provide bulk storage and feeding of wood pellets to the boiler. Below you will find several examples on how to configure bulk feeding:

Large hopper 3,3-7,6 ton with 3 meter auger.

Large hopper, 3,3-7,6 ton with vacuum transport to RTB Phoenix hopper.

Homebuilt storage with vacuum transport to RTB hopper.
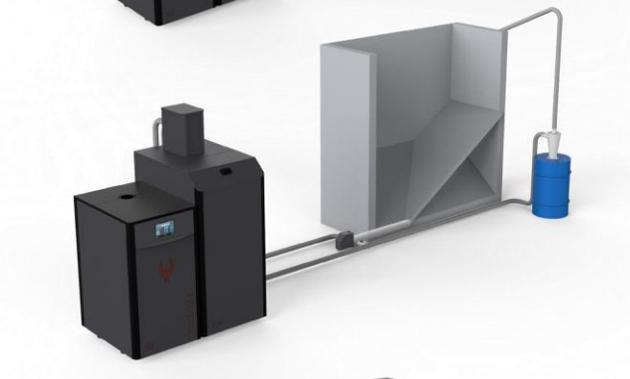
Home built storage with vacuum transport to standard hopper.

BOILER ROOM DESIGN:

The boiler room for biomass boilers must be installed in accordance 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 certified RTB dealer for guidance.

1. Wall and ceilling.

2. Distance to the wall.

3. Floor.

4. Area and Lightning.

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 Ceilling.
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 non-combustible 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.

The RTB Phoenix includes an inbuilt compressor, compressor tank, and extraction auger motor situated in the back of the boiler. Ensure that you have at least 20 cm of clearance in the back of the boiler to allow for the maintenance and servicing of these components.

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 Lightning.
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 operation and maintenance can be performed safely.

5. Chimney.
The chimney must be of a design, aperture area, and height that provides adequate draft conditions for the proper exiting of flue gasses. The height of the chimney must also be controlled to ensure that there is sufficient draft for chimney smoke to exit. The chimney draft is created by negative pressure resulting from hot smoke that is buoyant; thus causing the smoke to rise up through the chimney.
WARNING: *If there is not enough draft in the chimney, the smoke will not properly rise and will instead seep out through small cracks; causing toxic smoke to seep into the house.*
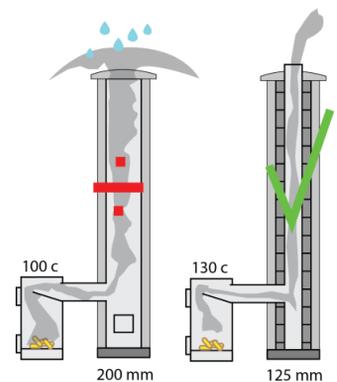
BOILER ROOM DESIGN:

The internal diameter of the chimney must be sufficient enough for the amount of flue gasses the chimney has to lead away. If the internal diameter 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 tar like soot to sit in the chimney and create what is called creosote, 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 prosecution if there are neighbors that complain about the smoke or odor.

What are the common signs that the chimney is not working?

- Smoke in the hopper.
- Warm drop shaft.
- Smoke billows out of the fan or boiler during start-up.
- Power is reduced due to lack of underpressure

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 able to get 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 combustion chamber air through a duct from the outside. The area amount 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, or oil burner in the same room all use high pressure blowers that can steal the air in the room and cause under pressure in the boiler 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 is sufficient (at least 5 kg).
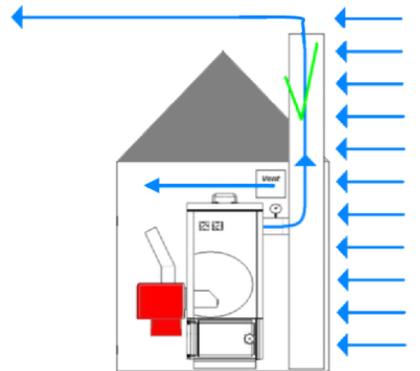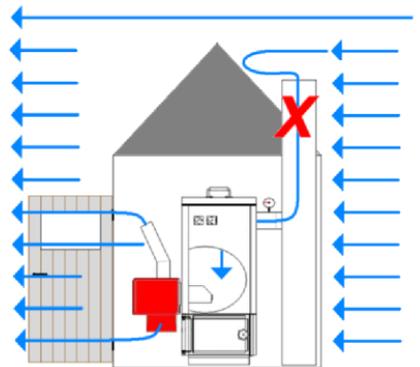
BOILER ROOM DESIGN:

8. Fuel.

The pellets must be pure wood, 6-8 mm, max. 8 % water.

Materials with glue, paint, wood paint or plastics shall 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 distances 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 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.
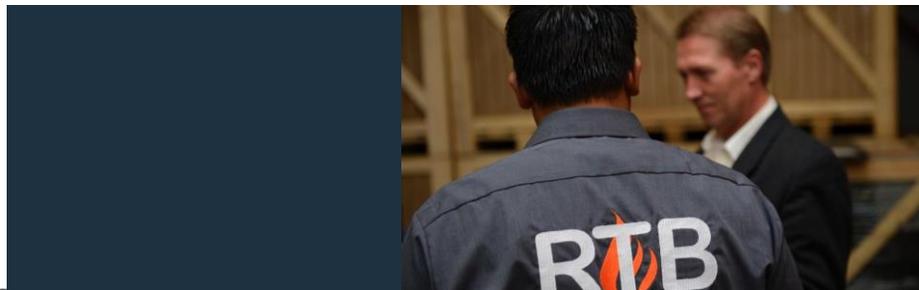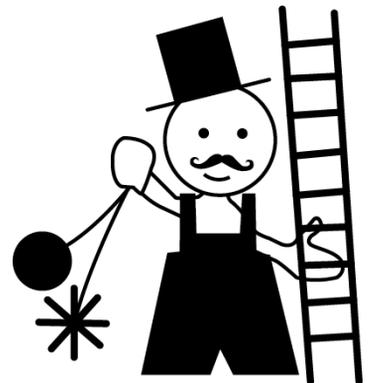
INSTALLATION DIAGRAMS:

A properly 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. Simple

Return water control with mechanical flow via adjustable shunt.

You should also have some type of control for the DHW
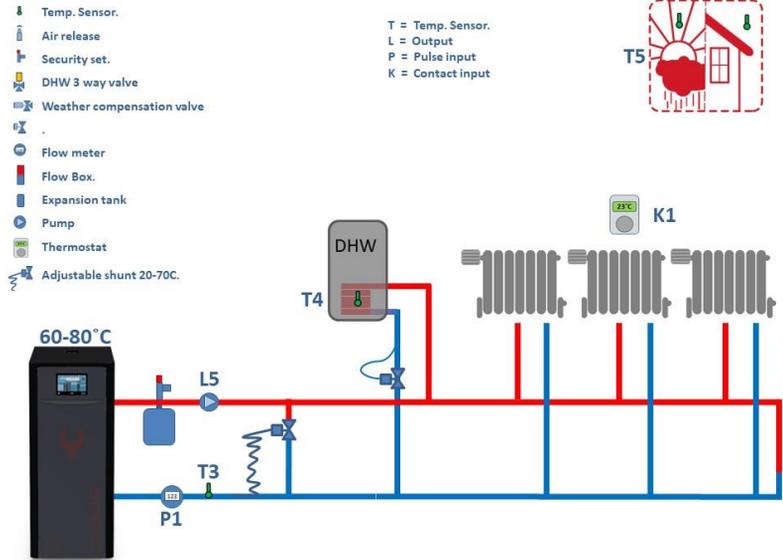
2. DHW w/ 2-way Hot Water Priority Valve

Typically used when DHW is small or when the surface coil is small.

Heat for the house is supplied <u>while</u> hot water is being produced
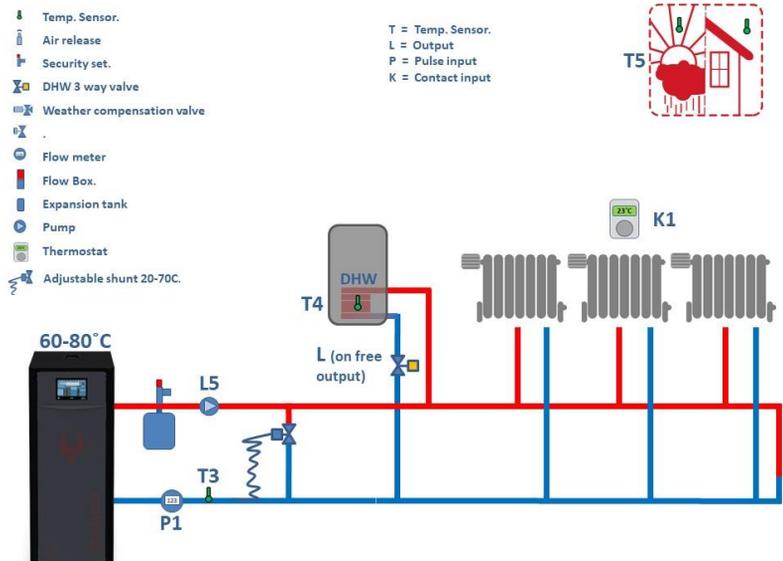
INSTALLATION DIAGRAMS:

A properly 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.

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

Legend:
- Temp. Sensor.
- Air release
- Security set.
- DHW 3 way valve
- Weather compensation valve
- Flow meter
- Flow Box.
- Expansion tank
- Pump
- Thermostat
- Adjustable shunt 20-70C.

T = Temp. Sensor.
L = Output
P = Pulse input
K = Contact input
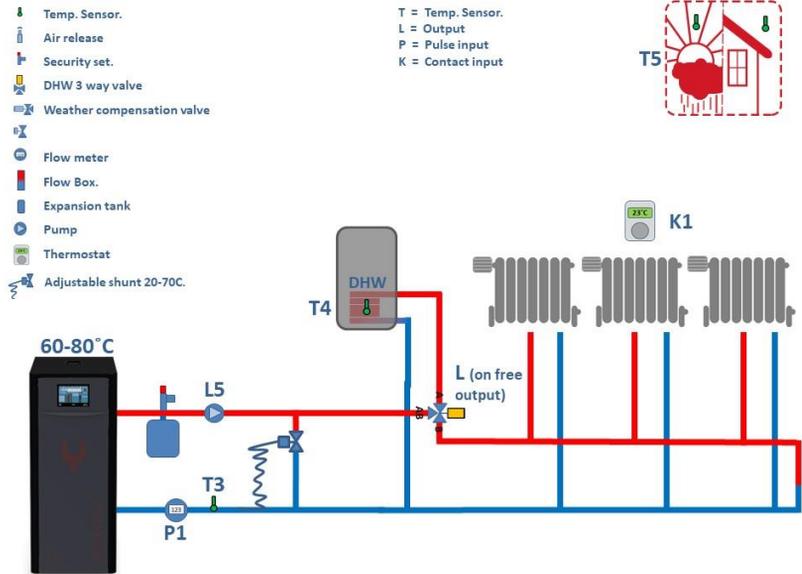
4. Weather Compensation and solar thermal heating for the DHW tank .

With an NBE flow box and 3-way weather compensation vlave, the controller is able to control the minimum boiler return temperature on the system and adjust the forwarding temperature to the house based on an outdoor or indoor temperature reference.

Note ! This setup requires the use of an extension module to supply all the extra outputs required in the installation.
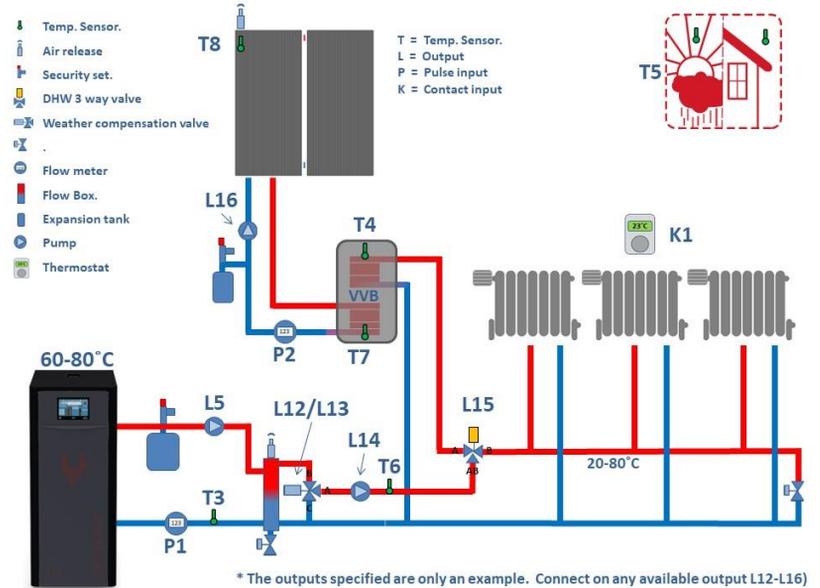
Legend:
- Temp. Sensor.
- Air release
- Security set.
- DHW 3 way valve
- Weather compensation valve
- .
- Flow meter
- Flow Box.
- Expansion tank
- Pump
- Thermostat

T = Temp. Sensor.
L = Output
P = Pulse input
K = Contact input

* The outputs specified are only an example. Connect on any available output L12-L16)

INSTALLATION DIAGRAMS:

A properly 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.

5. NBE CASCADE

Cascade systems are ideal when achieving large kW output (up to 640kW) and when the demand for heat varies significantly throughout the year. Cascade sysems maintain a high efficiency across the combined modulation range.

Up to 8 boilers can be cascaded.

The boilers must be registered on www.stokercloud.dk

And afterwards setup in a cascade system on

www.cascade.stokercloud.dk

Cascade Stokercloud will start and stop the boilers in the cascade to ensure the desired combined heat and will balance the operational use of the boilers across time.

Temp. Sensor.	
Air release	
Security set.	
DHW 3 way valve	
Weather compensation valve	
.	
Flow meter	
Flow Box.	
Expansion tank	
Pump	
Thermostat	

T = Temp. Sensor.
L = Output
P = Pulse input
K = Contact input

Saeby

5.4 °C	Outdoor
19.2 °C	T5
44.2 °C	Zone 1
41 °C	Zone 1 wanted
34 %	Zone 1 valve

Power: 84.8kW (144 kW)
Total consumption: 27922.4 kg
External hopper content: -1,779.7 kg

rtb01		rtb02		rtb03	
151 °C	Chimney	158.5 °C	Chimney	45.9 °C	Chimney
65.5 °C	Boiler	70.7 °C	Boiler	64.1 °C	Boiler
77 %	Power	100 %	Power	0 %	Power
0 l/h	Flow	1572 l/h	Flow	0 l/h	Flow
10.6 %	O2	5.7 %	O2	21.6 %	O2
8.3 %	O2 wanted	7.0 %	O2 wanted	20.9 %	O2 wanted
100.29 %	O2 low regulation	105.19 %	O2 low regulation	100.81 %	O2 low regulation
101.64 %	O2 mid regulation	105.44 %	O2 mid regulation	101.40 %	O2 mid regulation
105.24 %	O2 high regulation	105.99 %	O2 high regulation	100.22 %	O2 high regulation
98.1 %	Online uptime	97.4 %	Online uptime	95.0 %	Online uptime
30.6	Consumption index	32.4	Consumption index	32.3	Consumption index
1523.8 kg	Ash draw	1362.9 kg	Ash draw	874.2 kg	Ash draw

12-29-2015 09:00:06

12-29-2015 09:00:27

12-29-2015 09:00:17

INSTALLATION OF THE BOILER:

General Guidelines

1. The boiler should only be installed by qualified installers with a "**Certificate for installation and service of small biofuel plant**" and must be installed according to your local and national building and construction codes.

2. The boiler must **not** be installed on any combustible surfaces.

3. Uninsulated smoke pipes should be kept to a minimum as this will reduce draft and can cause condensation that will damage the boiler. If installing a 90 degree bend in the chimney make sure to reduce chimney horizontal length and have a chimney clean out door available for easy cleaning access. For better flow we recommend installing a 45 degree bend as this will allow for less ash to accumulate in the chimney pipe.

4. The chimney draft should maintain a minimum of 10 PA and be stable at both nominal and minimum power.

5. SHUNT or FLOWBOX W/ WEATHER COMPENSATION KIT
The boiler must be installed with either an approved shunt or a flowbox with weather compensation valve and a boiler return temperature sensor reference. *NOTE*: You may lose your warranty if failing to install an approved anti-condensation circuit with your system. (*See approved installation diagrams on pg 11-13)*

6. Do not install this system with a draft stabilizer
The RTB Phoenix is equipped with an under pressure sensor and inbuilt exhaust fan that will regulate the draft to maintain 10 pascals in the chimney. If your building code requires a draft stabilizer to be installed on this system we advise to install the draft stabilizer low on the chimney to prevent flue gasses from entering the boiler room. **Note:** Despite having an exhaust fan inbuilt in the boiler, the chimney must nonetheless be capable on it's own to deliver a minimum of 10 pascals of under pressure.
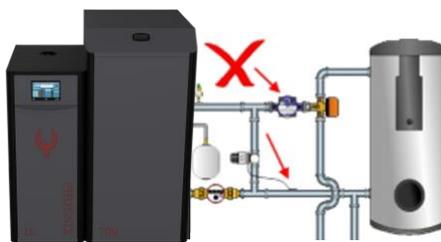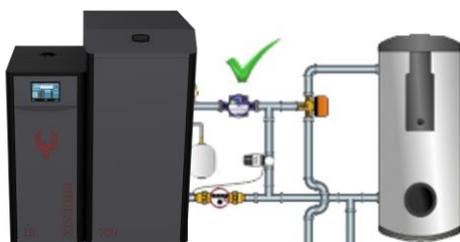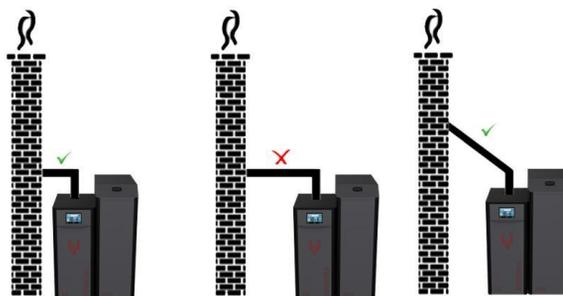
FIRST TIME START-UP:

Installation and operation of the hopper level sensor

Your RTB Phoenix boiler includes a lazer distance sensor that allows you to monitor the pellet level in your hopper.

Installation:

1.Find the laser distance sensor at the back of the boiler.

1.If you are using a RTB Phoenix hopper, string the lazer distance sensor through the precut hole found in the back of the hopper.

1.Mount the lazer distance sensor on the underside of the hopper lid but directly above the opening to the hopper auger. *Note: The sensor is fitted in a magnetic housing that allows it to be easily mounted onto the underside of the hopper lid.*

Operation

The laser distance sensor will measure the distance between the sensor and the pellet level in the hopper. When the pellet level gets below a minimum amount for operation i.e. at a greater distance (cm) than the **STOP BOILER AT DISTANCE** cm level (see right), the system will automatically go to a **STOP state** in order to retain a minimum amount of pellets for an easy startup. If your boiler goes to a **STOP state** due to low pellets in the hopper, simply add pellets to the hopper and the boiler will start up automatically once the laser distance sensor recognizes that the pellet level is above the minimum required amount.

If your system is online, you can choose to receive email notifications prior to this forced boiler stop level and prevent any down times by specifying the distance when a notification should occur i.e. at **INFO MESSAGE AT DISTANCE cm** and by enabling e-mail notifications in your Stokercloud notification settings.

Weighing the pellets

Once the system is assembled, filled with water, connected with power, and supplied with wood pellets a basic calibration of the auger is required.

1.Detach the drop hose from the drop tube on the burner and attach a plastic bag or similar underneath the drop hose.

1.Go to the **System>Manual>External Auger> ON**. This will force start the external auger. Allow for approximately 15 minutes of auger running time after pellets begin dispensing. This will ensure that the auger is completely filled and will allow for a more accurate weighing later. Once complete, discard the pellets from the plastic bag and refasten the empty plastic bag to the drop hose.

1.Go to the **Hopper menu> Force external auger>Force auger 6 min** to activate the 360 second test. Wood pellets will begin dispensing.

1.When the test is complete, remove the plastic bag, and weigh only the pellets on a kitchen scale. Enter the weight in the controller by going to the **Hopper** menu >**Auger capacity/6min>** enter "pellet weight".

1.Once completed your system is calibrated and you may now start up the boiler.

Hopper Settings

Stop boiler at distance cm cm	80
Info message at distance cm cm	70
Full hopper distance cm cm	20
Empty hopper distance cm cm	90
Trip counter 1 kg	7843
Trip counter 2 kg	7843
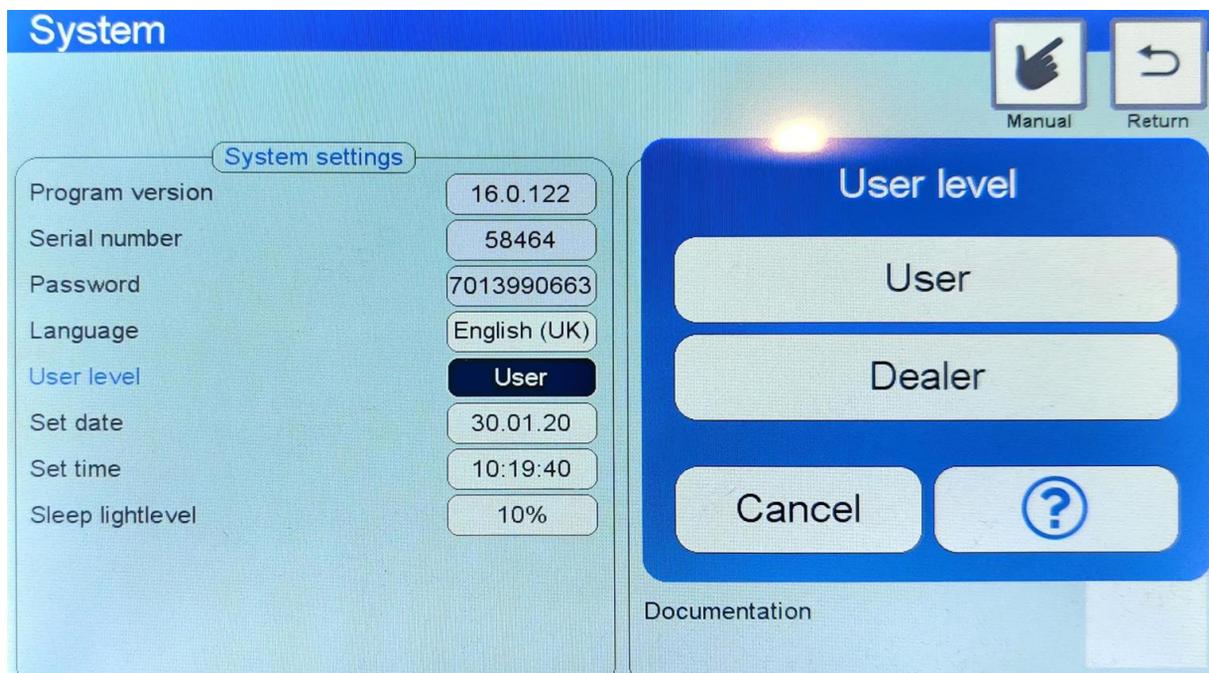
USER LEVEL MODE

General Guidelines

The controller has several different controller modes based on the USER LEVEL selected. These include:

• USER
• DEALER

The USER LEVEL can be accessed by going to the SYSTEM menu and selecting USER LEVEL.

USER LEVEL:

If you are an inexperienced end user i.e. not an authorized installer you should only operate your controller in the basic USER mode. Keeping your system in USER mode will prevent you from any accidental changes to your controller that could have an influence on the performance of your boiler. Under the USER mode you will still be able to make changes to the most common basic functions such as the wanted temperature of the boiler, the weather compensation curves for each zone, as well as the timers for both heat production and DHW production.

DEALER LEVEL:

The DEALER LEVEL is reserved for authorized installation and service providers. In this mode, the dealer will have full access to the more detailed controls of the system. IMPORTANT: As a dealer, you will need to access this mode when connecting any accessories to the controller as you will need to assign the outputs/inputs for the installed accessory which can only be visible within the DEALER mode.

V16 PRINT:
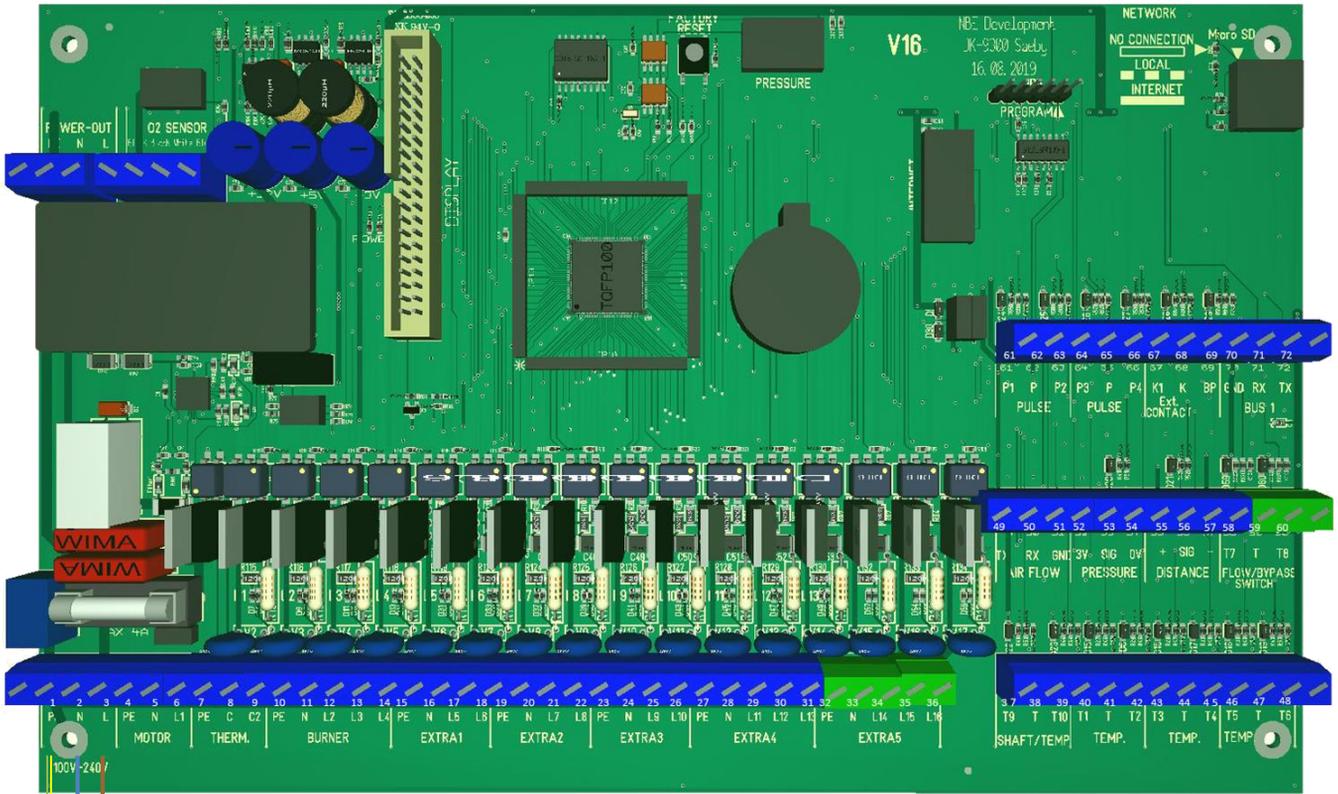
100-230 V
power
supply

10 11 12 13 14 18 50 69 37 38 39 -
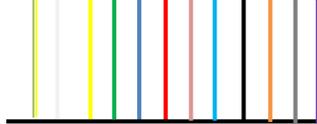
Air flow
sensor
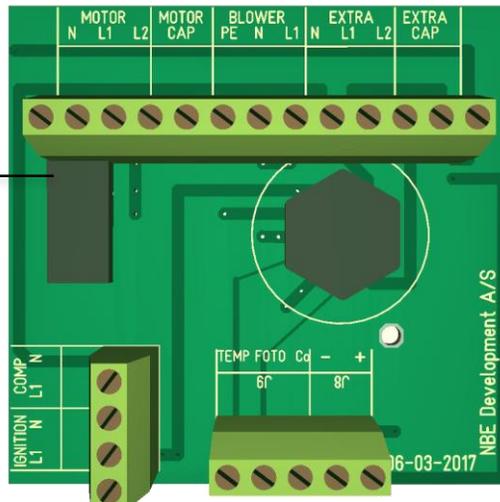
12 pin
BURNERPRINT

V16 PRINT CONNECTIONS

Main Print Board	12 pin cable	WIRE	INPUTS	OUTPUTS	NUMBER	FUNCTION
100V-240V			PE-N-L		1-2-3	100-240 Volt 50-60Hz
THERM			C-C2		7-8-9	Safety Thermostat
MOTOR				PE-N-L1	4-5-6	External Auger
BURNER	Green/Yelllow			GND	10	
BURNER	WHITE			N	11	
BURNER	YELLOW			L2	12	Blower
BURNER	GREEN			L3	13	Internal auger
BURNER	BLUE			L4	14	Igniter
EXTRA 1				PE-N-L5	15-16-17	Circulation Pump
EXTRA 1	RED			L6	18	Compressor Cleaning Burner
EXTRA 2				PE-N-L7	19-20-21	Ash Auger
EXTRA 2				PE-N-L8	19-20-22	Compressor
EXTRA 3				PE-N-L9	23-24-25	Compressor Boiler Valve 1
EXTRA 3				PE-N-L10	23-24-26	Compressor Boiler Valve 2
EXTRA 4				PE-N-L11	27-28-29	Exhaust Fan
EXTRA 4				PE-N-L12		Available Output for Accessories.
EXTRA 4				PE-N-L13		Available Output for Accessories.
EXTRA 5				PE-N-L14		Available Output for Accessories.
EXTRA 5				PE-N-L15		Available Output for Accessories.
EXTRA 5				PE-N-L16		Available Output for Accessories.
BUS 1			GRD		70	
BUS 1			RX		71	Available for Extension Module*
BUS 1			TX		72	
*REQUIRES ACCESSORY PE= YELLOW/GREEN N= BLUE L = BROWN AIRFLOW			3V			Free
AIRFLOW			TX			Free
AIRFLOW	PINK		RX		50	Air Flow Sensor Burner
PRESSURE	BROWN		3V		52	Compressor Pressure Sensor

18

12 PIN BURNER PRINT CONNECTIONS
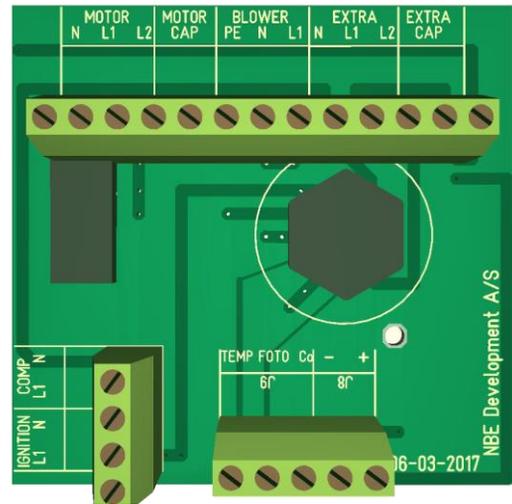
RTB Phoenix 10-30 kW

12 pin BURNER PRINT	WIRE	INPUTS	OUTPUTS	FUNCTION	SKU:
MOTOR	BLACK		N		
MOTOR	WHITE		L1	Internal Auger Motor	YN60 8RPM, SKU: 400020-180
MOTOR	RED		L2		
MOTOR CAP	BLACK			Capacitor	
MOTOR CAP	BLACK				
BLOWER	Green/Yelllow		PE (grounded on motor)		
BLOWER	BLACK		N	Combustion Blower	Fan FL 85mm, SKU : 400003
BLOWER	BLACK		L1		
EXTRA					
EXTRA					
EXTRA					
EXTRA CAP					
EXTRA CAP					
IGNTION	BLUE		N		

12 PIN PRINT CONNECTIONS

RTB Phoenix 50 kW

12 pin BURNER PRINT	WIRE	INPUTS	OUTPUTS	FUNCTION	SKU:
MOTOR	BLACK		N		
MOTOR	WHITE		L1	Internal Auger Motor	Gear motor YN70 RPM, SKU: 400022-180
MOTOR	RED		L2		
MOTOR CAP	BLACK				
MOTOR CAP	BLACK			Capacitor	Capacitor 1.8µF, SKU: 400031
BLOWER	Green/Yelllow		PE (grounded on motor)		
BLOWER	BLACK		N	Combustion Blower	Fan FL 120mm, SKU 400008-111
BLOWER	BLACK		L1		
EXTRA					
EXTRA					
EXTRA					
EXTRA CAP					
EXTRA CAP					
IGNTION	BLUE		N		
IGNTION	BROWN		L1	Igniter	Ceramic heating element 250Watt, SKU : 400305
COMP	Red		L1		
COMP	Red		N	Compressor Cleaning Burner	Solenoid valve. 1/2 ", SKU : 400201
TEMP	BLACK	TEMP			
+	BLACK	+		Drop Shaft Sensor	Drop Shaft Temperature Sensor, SKU:400048-0.1
	BLACK				
EXTRA					
EXTRA					
EXTRA					
EXTRA CAP					
EXTRA CAP					
IGNTION	BLUE		N		

CONNECTING TO THE INTERNET:

Connecting your burner via the web:

1. On your controller go to SETTINGS/COMMUNICATION/NETWORK and find your internet Router

2. Go to PASSWORD and enter the password for your router. Your controller will now be connected to the internet.

Creating an account on Stokercloud

3. Go to www.v16.stokercloud.dk and insert your Controller serial number under the USERNAME.

4. Enter your controller password under PASSWORD

5. Follow the registration procedures on the site to setup your stokercloud account.

Your pellet boiler will now be online on www.v16.stokercloud.dk.

Tip: *Make sure that there is a solid blue light beside the SD card slot. A flashing light is an indication that your burner is not connected to the internet and you need to check your wireless router. If the lamp does not light up, your router is not connected to the internet. Check to see if your router is on and is functioning properly.*

CONNECTING TO THE INTERNET:

6. Enter where you live and save location.
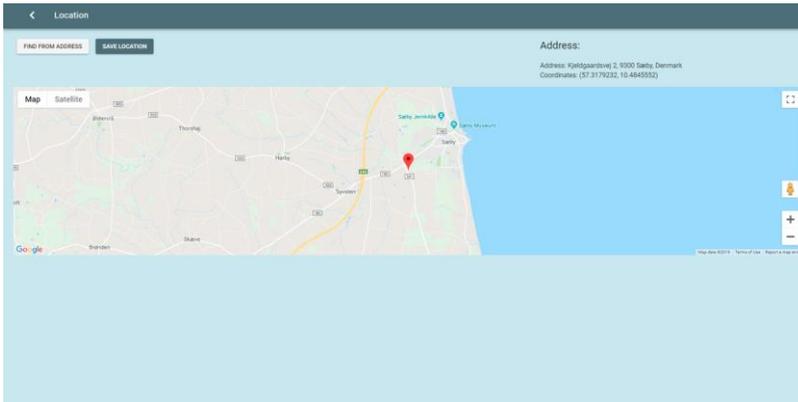
Once your configuration are saved, you will now have your own webpage and system dashboard on Stokercloud.

After a short period of time you will see data streaming from the burner.

CLOUD SERVICE:

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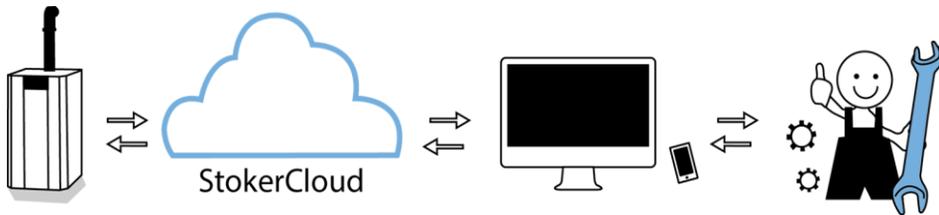
How it works:

- NBE observes abnormality on your graphs.

- If necessary, NBE will contact you by e-mail and ask
  your permission to make operational change.

- NBE evaluates your graphs and the patterns of your burner, and
  makes adjustments based on the observations.

- Changes to your settings can always be viewed via your system LOG.

- After adjusting, it should look like this

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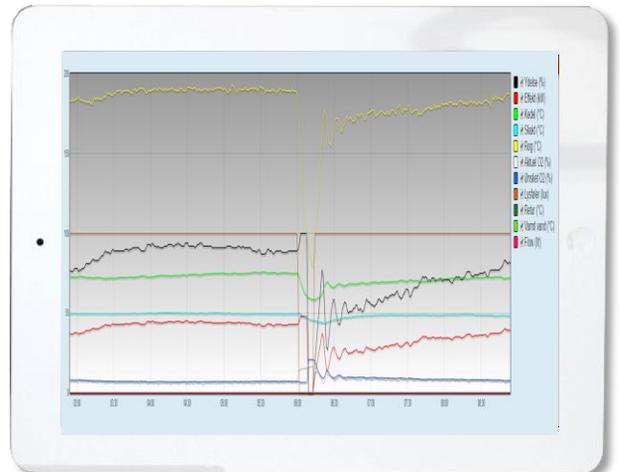
SERVICE MAINTENANCE

Cleaning should be carried out as needed. There is a big difference depending on the construction setup, adjustments and wood pellet quality on how often maintenance should be performed. The maintenance table below is only an indication of the type of maintenance required and applies only for RTB Phoenix systems!

When needed	7 days	14 days	30 days	½ annually	Annually	RTB Phoenix
X				X	X	Clean cinders out of the burner head
				X	X	Clean under the combustion grate for dust and cinders
					X	Clean O2 sensor of dust
					X	Clean burner fan from dust
X				X	X	Clean heat exchanger and smoke pipes
X				X		Empty ash drawer, typically every 1000- 3000 kgs consumed.
					X	Check gasket/replace worn gaskets Check air flow and under pressure sensors/replace where necessary
					X	Recalibrate O2 sensor
X						Filling the hopper
					X	Chimney sweeper

The ash can

! Never throw warm ashes in the trash bin, but let it cool off in a metal bucket. Warm ashes can burn if it gets air (02)

! Remember to mount the ash bin correctly after emptying it, otherwise smoke can leak out the back!

Hopper.
Since pellets naturally contain dust, you should once in a while empty the hopper completely. The more dust that is present in the hopper, the less pellets 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.

Start-Up after cleaning.
Reassemble the system and turn on the controller, the burner will start up automatically.

TROUBLESHOOTING:

We have collected the most typical solutions to small problems.

Problem.	Possible cause.	Possible solution.
Alarm hot drop shaft.	Cinders in the burner head.	More air for combustion.
Cause must be identified.	Back pressure in the boiler.	Clean the boiler etc.
Contact your dealer	No draft in the chimney.	Increase the chimney height.
		Clean the burner head regularly.
		Switch to a better quality of pellets.
Smoke in the hopper.	Ash in the hopper.	Clean the boiler etc.
Cause must be identified.		
Contact your dealer		
Smoke setbacks	No draft in the chimney.	Insolate the smoke pipe.
Cause must be identified.		Increase the chimney height.
Contact your dealer		Submerge a liner in the chimney.
		Increase temperature of the smoke, remove the semi cleaning grates from the boiler.
	Drop shaft sensor defective.	Change temperature sensor on the burner print.
	Unfortunate wind conditions.	Increase the chimney height.
		Close doors etc.
		Make intake on the same side as the chimney.
Alarm ignition	Defective ignition.	Replace the electrical igniter with a new one.
	Ignition is located wrong.	Mount it correctly
	Burner grate is fitted wrong.	Mount it correctly.
	Too high chimney draft.	Install a draft stabilizer in the chimney.
		Set electric ignition power up.
		Reduce the fan speed during ignition.
	Stopped fan	Check if the fan can run, replace if necessary
	The temperature sensor	Change temperature se...

TROUBLESHOOTING:

Problem.	Possible cause.	Possible solution.
Alarm RPM	RPM sensor defective.	Change the fan.
		Change to % regulation at the fan.
No power to the controller	Defective fuse in the controller.	Replace the fuse to a new one.
	Safety thermostat not active.	Reconnect by firmly pressing the red button.
	The controller has been overvoltage.	Send controller to NBE 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.

PREVENTING FLUE GAS CONDENSATION:

When a boiler has an extremely high efficiency >93 %, the temperature of the flue gas is naturally low. Typical flue loss is only 2-3 %. This creates greater demands on your chimney and on how to adapt the boiler to its existing installation. It is important, if you have condensation to prevent it; otherwise you risk developing soot into the chimney and corrosion in the boiler.
Note: Even if there is water in the boiler, it may be due to condensation from 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 cleaning in the chimney 125mm – 150mm.**
   Provides better flow, and can "carry" out more moisture.
3. **Short un-insulated smoke pipe < 0,5m**.
    Do not cool down the smoke unnecessarily before it reaches the chimney.
4. **High boiler temperature >70C degrees .**
   10 degrees up in the boiler temperature gives 10 degrees more smoke temperature.
5. **Suitable return temperature > 55C degrees.**
   The boiler may condense when the heat exchanger surfaces are below 47 degrees.
6. **Heated boiler room.**
   Lowers cooling of the boiler and smoke pipe and provides draft stabilizer more hot air to work with.
7. **More oxygen in combustion**.
   Increases air flow in the boiler, and carries more moisture, 1 % more oxygen costs approx. 0,5 % in efficiency.
8. **Remove the turbulators.**
   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 readjusted after the turbulators are removed.
9. **Keep the boiler heated at all times**.
   If you are using DHW priority in the controller, and the boiler starts being cold by every start, the boiler will not manage to dry out at every start.
10. **Avoid limiting Max Power% under Weather Compensation**
    Limiting Max Power% under weather compensation should be performed only by a certified RTB professional that is familiar with the specific operations of the system. Limiting the power% could have the effect of preventing your boiler from reaching the wanted boiler temperature and thus could cause condensation in the boiler. *Warning: damages resulting from condensation are not covered in the manufacturer warranty.*
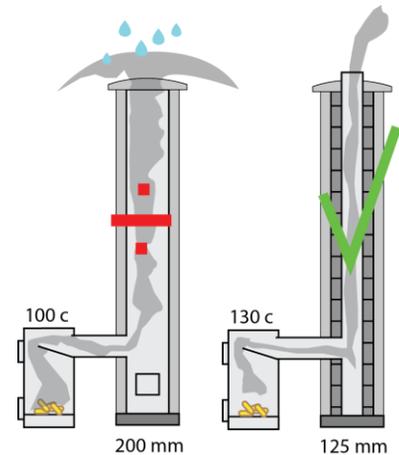
STOKERCLOUD MENU:

Weather data is automatically retrieved if the controller is online and registered at www.stokercloud.dk.

Output icons show the operational status of the equipment.

You can choose which parameters you would like to track on the dashboard by going to System Menus/Screen

Selecting an output icon shows more detailed information.

O₂
O2

Cleaning

Igniter

Pump

Temperature Regulation

Week Plan / Switch

⑦ Wanted boiler temp. °C   70

Submenus can be found when accessing a main menu.

On

WEEK PLAN

v16.stokercloud.dk/boiler/o2

O₂
O2

Cleaning

Igniter

Pump

Temperature Regulation

Week Plan / Switch

⑦ Wanted boiler temp. °C   70

⑦ Weekplan   On

⑦ Week plan   WEEK PLAN

Select ? to retrieve parameter help text.

Dialog

Specify the desired boiler temperature. The burner will adjust its output to meet this setpoint.

OK

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Tuesday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Wednesday	On	On	On	On	On	On	On	On								On	On	On	On	On	On	On	On	On
Thursday	On	On	On	On	On	On	On	On								On	On	On	On	On	On	On	On	On
Friday	On	On	On	On	On	On	On	On								On	On	On	On	On	On	On	On	On
Saturday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Sunday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On

Under boiler timer you can choose between ON, OFF, or nightime reduction temperature.

ALL ON   ALL OFF   COPY MONDAY   SAVE

!

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Tuesday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Wednesday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Thursday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Friday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Saturday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On
Sunday	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On

ALL ON   ALL OFF   COPY MONDAY   SAVE

Under the DHW time you can choose between On/Off during a timer period.

3 h ▼   📅 2019-11-25

Select to view weather data graphs.

Choose graph periods upto 48 hours

Choose color of line graph

Choose data to graph.

☑ Power (%)
☐ Power (kW)
☑ Boiler (°C)
☐ Smoke (°C)
☐ Shaft (°C)
☐ Return (°C)
☐ Hot water (°C)
☑ Wanted O2 (%)
☑ O2 (%)
☐ Fan speed (%)
(m3/h)
airflow (m3/h)
stfan speed (%)
vacuum (Pa)
☐ Ash box (cm)
☐ Wifi signal strength (rssi)
☐ External temperature (°C)

70
60
50
40
30
20
10
0
05:40 05:50 06:00 06:10 06:20 06:30 06:40 06:50 07:00 07:10 07:20 07:30 07:40 07:50 08:00 08:10

Hopper

---

24 HOURS   24 DAYS   12 MONTHS   12 YEARS

250kg
■ Heat production ■ Hot water production

200kg

150kg

100kg

50kg

0.0kg
          4   7   10   13   16   19   22   25

The blue bar graph shows DHW consumption. Green= heat consumption

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LOG

Monday 25/11-2019		
⚙	08:32:40	Language 1 → 0
⚙	08:32:28	Language 0 → 1
Sunday 24/11-2019		
		Ignition 1 → DHW
ⓘ	15:37:18	
💬	15:36:33	
ⓘ	15:36:32	Started by button
💬	15:35:48	Power up → Off
ⓘ	15:35:37	Power up 0 95
ⓘ	15:35:00	Power-down
		Error no fire → Off
		Alarm cleared

Displays setting changes

Displays changes in operations status

Provides info messages .

Weather Compensation Data

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.

If you purchase your RTB from an authorized dealer, and have your boiler online as well as have annual service visits, the guarantee can be increased to 36 months on the technique and up till 10 years on the boiler vessel.

The customers installs it himself

6 months

A plumber installs the boiler (not authorized dealer).
6 months
An authorized dealer installs the boiler + Online on StokerCloud.
12 months
An authorized dealer installs the boiler + Online on StokerCloud + annual service visits   **36 months**
An authorized dealer installs the boiler + online on StokerCloud + annual service visits.   **10 years***

* Boiler vessel warranty against manufacturing defects.

The warranty covers only manufacturing and material defects.
The warranty of product failure of the system when under warranty, NBE will repair the spare pare 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 – e.g. 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 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 claims or disputes.

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

The material is also available on www.nbe-global.com.

EC DECLARATION OF CONFORMITY

No. : ……………. 2605-2020

The undersigned, representing the following manufacturer

Manufacturer : NBE production A/S

Address : Kjeldgaardvej 2,   DK9300 Saeby, 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 :
BS+ 10, BS+ 16, BS+ 25
RTB 10, RTB10 VAC, RTB 10 Phoenix
RTB 16, RTB16 VAC, RTB 16 Phoenix
RTB 30, RTB 30 VAC, RTB 30 Phoenix
RTB 50, RTB 50 VAC, RTB 50 Phoenix
RTB 80, RTB 80 VAC, RTB 80 Phoenix
RTB 100, RTB100 VAC, RTB 100 Phoenix

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*
Energimærkningsforordningen	*(EU) 2015/1187*
Ecodesign forordningen	*(EU) 2015/1189*

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: …19

| **Jannich Hansen** | Sæby | **02/12/2019** |

Jannich Hansen

(signature)

ACCESSORIES:

The controller supports the following accessories.

Extension module for V13 and V16 controller (SKU:300211)
Get additional 7 outputs and inputs for additional equipment.

Wifi Temperature Sensor: (SKU: 300042)
Battery powered wireless temperature senor that can be used as a reference sensor for weather compensation, domestic hot water, or as an external stop temperature reference.

Hot Water Priority kit ¾" (SKU:300040, 300041)
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.

Kit: Weather/Indoor reset compensation (SKU:510027,510028)
Maintains a high boiler temperature and adjusts the house inlet temperature in relation to the outdoor temperature.

Pelvac Vacuum System (SKU: 707100, 708100)
Allows you to pneumatically deliver pellets from your bulk storage to your day hopper. Includes pelvac extraction auger, transport piping, fittings, and vacuum head unit with rotary valve. Available in 600 & 1000 W units.

WIRING DIAGRAM

Extension Module for V13 print board
(only compatible with V13 print boards)

PE (YELLOW/ GREEN WIRE) Connect to PE (68) on main V13 print

N (BLUE WIRE) Connect to N (67) on main V13 print

L (BROWN WIRE) Connect to L (66) on main V13 print
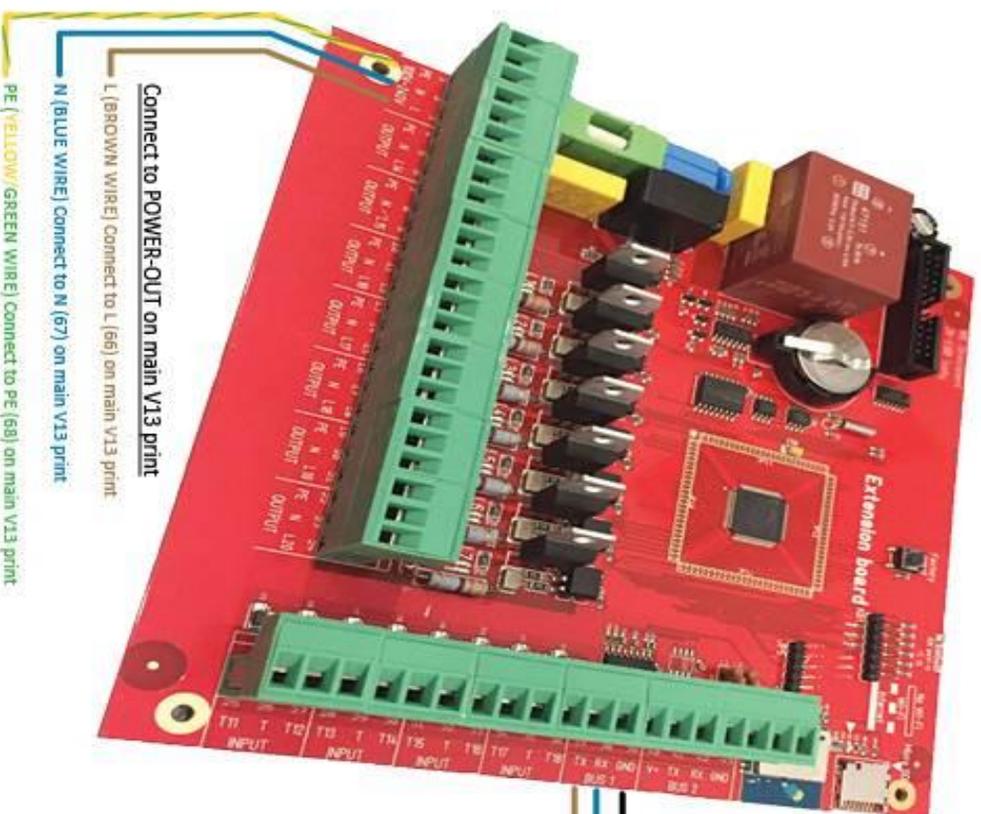
Connect to POWER-OUT on main V13 print

GND (BLACK WIRE) Connect to GND (63) on main V13 print

RX (BLUE WIRE) Connect to TX (65) on main V13 print

TX (BROWN WIRE) Connect to RX (64) on main V13 print

Installation Instructions:

1. Disconnect Power

2. Mount the extension module along side the main V13 print board.

3. Connect power supply from main print board to 100V-240V connection found at 1,2, & 3 on the extension module.

4. Connect TX (on main V13 print BUS 1) to RX (on Ext mod. BUS 1)

5. Connect RX (on main V13 print BUS 1) to TX (on Ext mod. BUS 1)

6. Connect GND (on main V13 print BUS) to GND (on Ext mod. BUS 1)

7. On the tablet go to setup and set the "extention module connected" setting to "on"

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INSTALLING MOTOR VALVE WITH 12 PIN PLUG

L (Connect on 230 Volt AC)

N

On available output L12 – L16
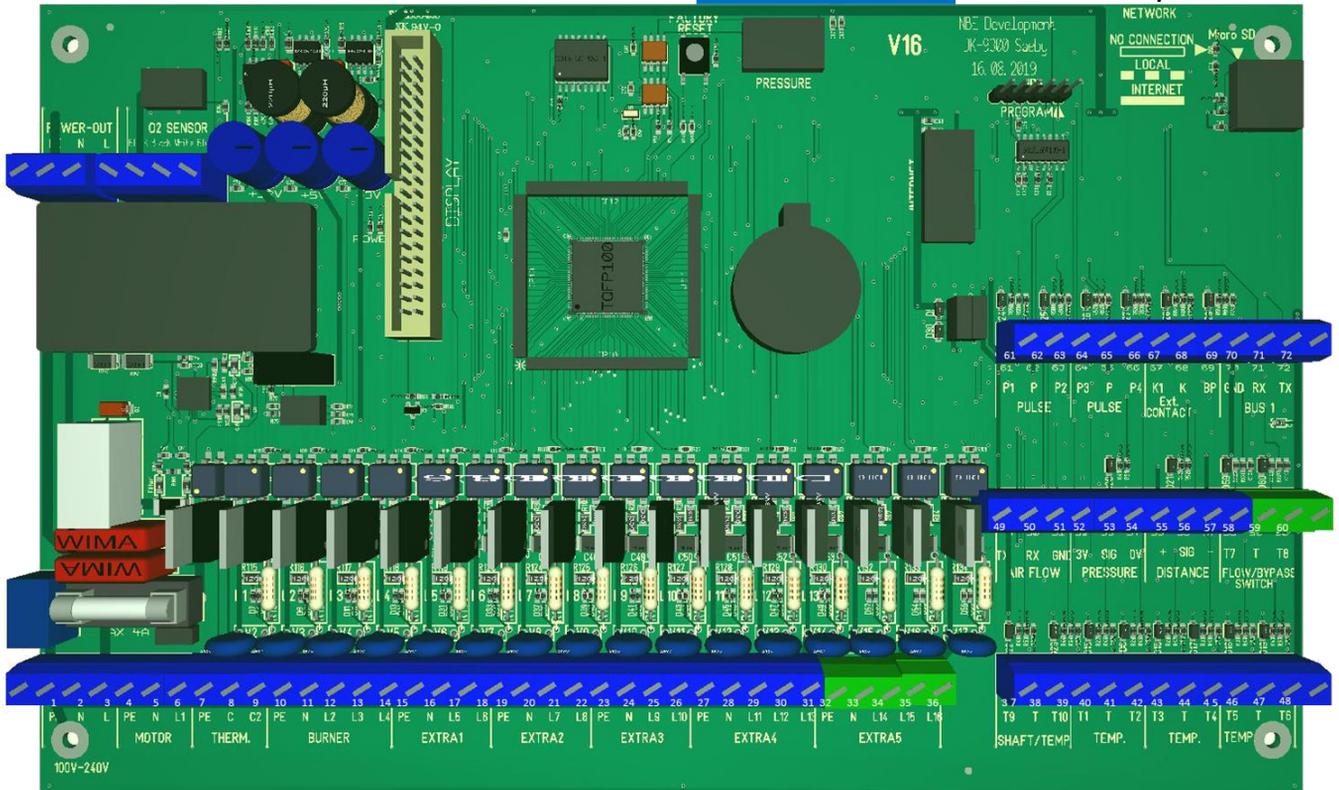
1. Mount the 3-way valve on the flow from the boiler.
2. AB flow into the valve.
3. B for house/radiator/floor heating.
4. A to DHW.
5. The temperature sensor is to be mounted in the DHW tank. If it is mounted high (1), it will give less hot water, but fewer start-ups. If it is mounted low (2), it will give more how water, but starts faster while tapping. That gives more start-ups/day.
6. Activate the output that has been chosen in the controller
7. Choose a wanted temperature in DHW in the controller

Connecting print

T

T4

Quick Installation Guide

Pelvac Vacuum Transport System with rotary valves
SKU: 708100, 707100

NBE - POWERED BY NATURE

Put overpressure back into the top of the storage unit..
Failure to do so may cause the auger to jam up.
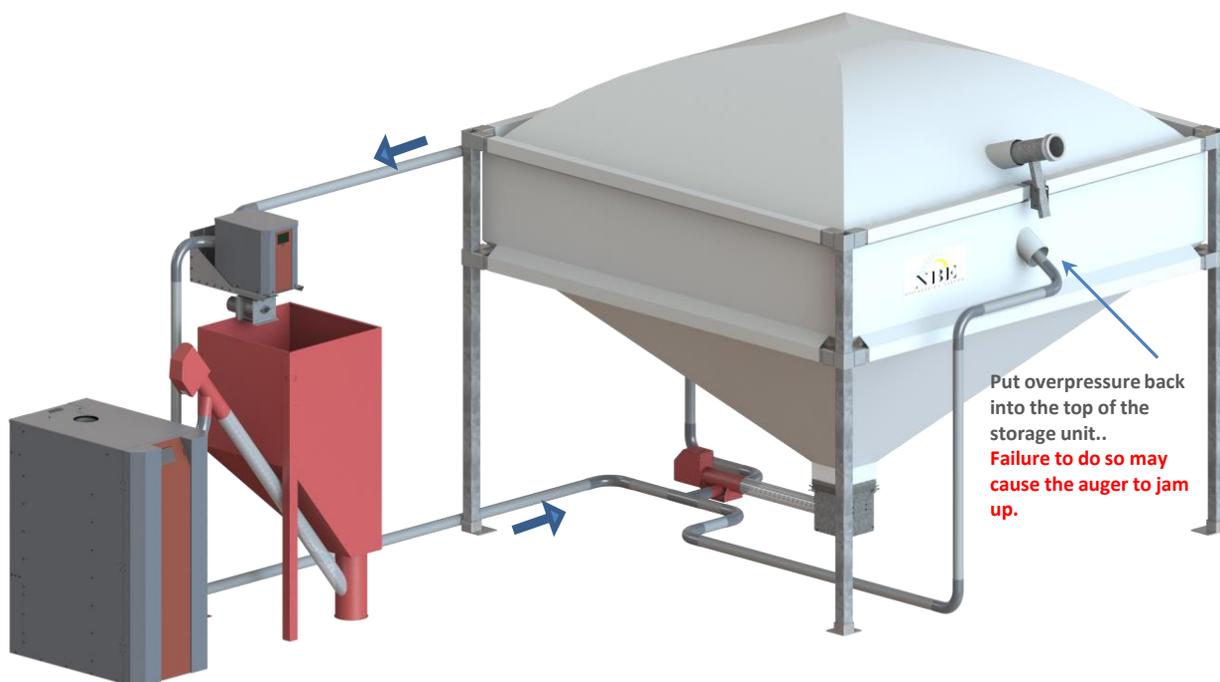
Wire	Wire Color	Connection to print
Vacuum/Rotary Valve	**Green/Yellow**	PE
Vacuum/Rotary Valve	Blue	N
Vacuum/Rotary Valve	Black or Grey	On an available output **L12-L16** or on Ext. mod **U14-U20.** *Make sure to attach the provided heatsink to the triac on the chosen output and change the fuse in the controller with the provided 8 amp fuse.*
Distance Sensor	Red	Distance +
Distance Sensor	Yellow	Distance Sig
Distance Sensor	Black	Distance -
External/Extraction Auger	Green/Yellow	PE
External/Extraction Auger	Blue	N
External/Extraction Auger	Black	On an available output L12-L16 or on Ext mod U14-U20

Installation Guide

Pelvac Vacuum Transport System with rotary valves
SKU: 708100, 707100

NBE - POWERED BY NATURE

Under Vacuum Transport Menu:

1.Specify Outputs for Vacuum/Rotary valve and External(Extraction)Auger in the controller

1.Specify Maximum Distance (i.e. distance from the sensor when the vacuum will start) and Minimum Distance (i.e distance from the sensor when the vacuum should stop) .
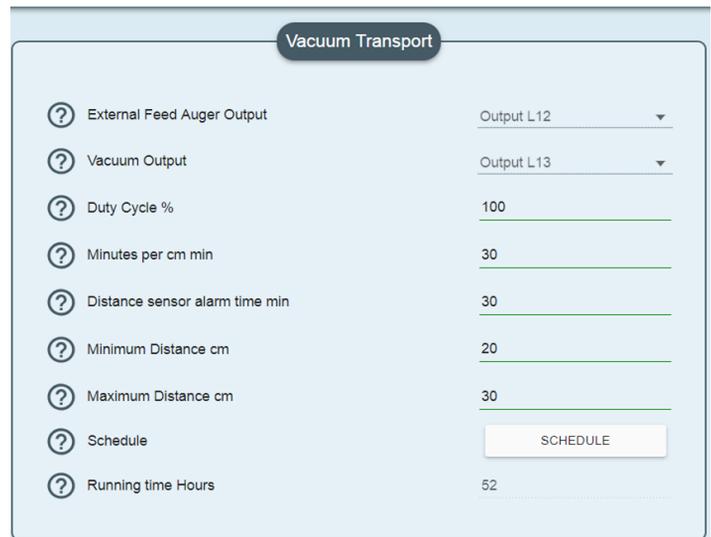
Vacuum Transport	
(?) External Feed Auger Output	Output L12 ▼
(?) Vacuum Output	Output L13 ▼
(?) Duty Cycle %	100
(?) Minutes per cm min	30
(?) Distance sensor alarm time min	30
(?) Minimum Distance cm	20
(?) Maximum Distance cm	30
(?) Schedule	SCHEDULE
(?) Running time Hours	52

Vacuum Transport Menu :

External Feed Auger Output: Select the output the auger is connected to

Vacuum Output: Select the output the vacuum is connected to

Duty Cycle %: Running time in percent for external feed auger. 100% = Always on.

Minutes per cm min: Maximum minutes allowed for at least one centimeter increase of pellets in hopper.

Distance sensor alarm time min: Amount of time the distance sensor is out of range before triggering an alarm

*Minimum Distance cm:* Distance used to stop the external feed system

Maximum Distance: Distance used to start the external feed system

Schedule: Select time periods when the vacuum transport system is allowed to run

Running Time Hours: The total amount of hours that the vacuum transport system has been running

INSTALLING CERAMIC HEATING ELEMENT 300 W.
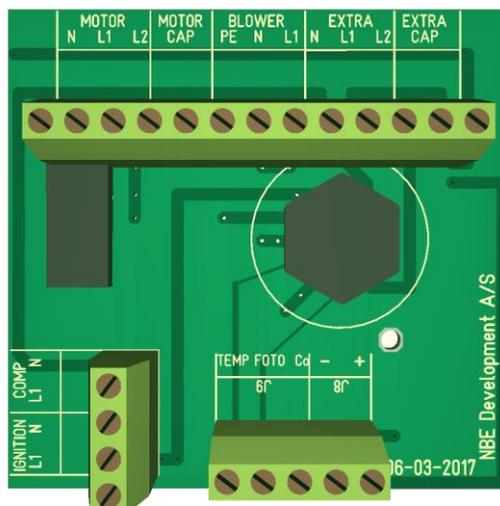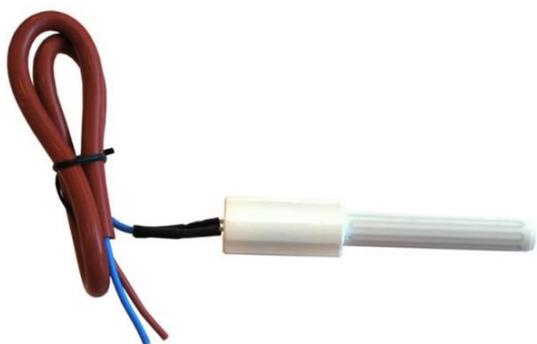
| 12 pin BURNER PRINT	WIRE	INPUTS	OUTPUTS	FUNCTION	SKU:
IGNTION	BLUE		N		Ceramic heating element 250Watt, SKU : 400305
IGNITION	BROWN		L1	Igniter	

Recommended adjustments:

- Preheating   **30 sek.**
- Power   **65 %**
- Max time   **6 min.**
- Blower low   **40 %**
- Blower middle   **50 %**
- Blower high   **60 %**

I.D Ø 18 mm
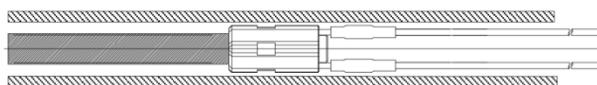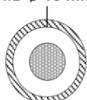
Protection tube
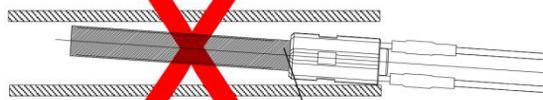
The ceramic heating element must <u>not</u> be in contact with any metal surface
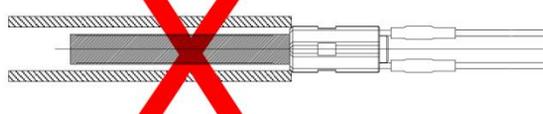
There must be a minimum of 3 mm air around the heating element

NBE 3 way valve

Part nr.

|	
¾" valve	570022
1" valve	570023
¾" w/ weather compensation KIT	570024
1" w/ weather compensation KIT	570026
NBE ¾" weather compensation KIT w/ flowbox	510027
NBE 1" weather compensation KIT w/ flowbox	510028

Size

¾"   1"

80mm

40mm

82mm

41mm
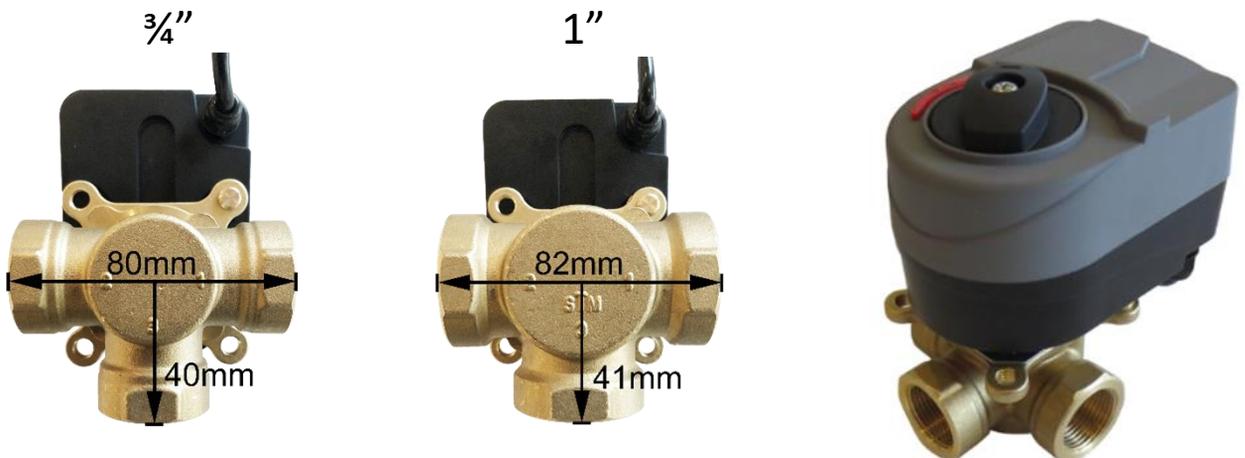
Settings

The picture on right shows the starting point of the dial. If the dial is oriented as pictured, the water flow will enter the valve as shown by the arrows..
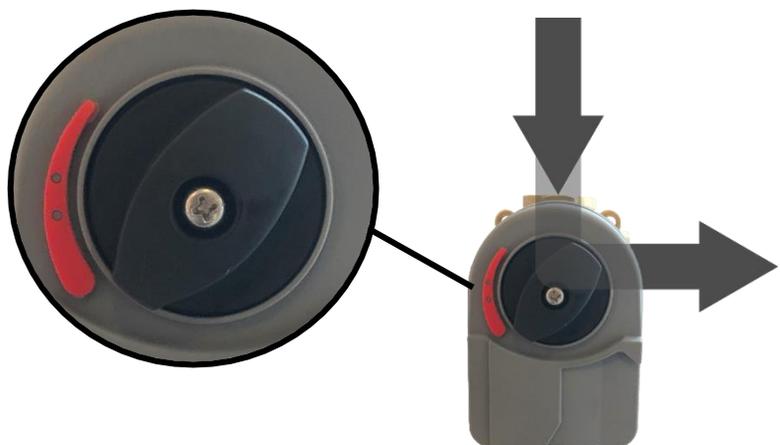
NBE -POWERED BY NATURE

Installation of temp sensor

On the main printboard choose an available input between T2-T10. Or, on
the extension print choose an available input port fra T11 - T18.

Connection to printboard:

Ref. Temp. Zone 1	T
Ref. Temp. Zone 1	T2-18
Forwarding Temp. Zone 1	T
Forwarding Temp. Zone 1	T2-18

As an outdoor reference: mount the sensor outside on the north side of the building.

As an indoor reference: mount the sensor in the reference room

Install the sensor in a thermowell on the forwarding temperature side after the weather comp valve and pump.

Activate Inputs in the wireless screen:

In the controller, go to Menu **WEATHER** and choose the connected input port from the drop down menu that corresponds to the indoor/outdoor reference (**Input-outside temp. Sensor**) and forwarding temperature reference (**Input forwarding temp. sensor**).

Installing the weather valve:

On the main printboard, choose an available output port from L12-L16. Or on the extension printboard, choose an available output port from U14-U20.

Ground	Green	PE
Neutral	Black	N
Zone 1 valve open	Red	L
Zone 1 valve closed	White	L
Valve opening time	120 Sec	

Activate outputs in the wireless screen:

Under the **WEATHER** menu, choose the corresponding connected output for the opening of the valve (**Regulating Valve Open**) and for the closing of the valve (**Reglating Valve Close**) from the drop down menu. .

Forwarding temp. Zone 1

pump

weather valve

ZONE 1

pump

Boiler

Flowbox

NOTES:

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

Date	
Weighing	g
kW low	kW
kW high	kW
Blower low	%
Blower middle	%
Blower high	%
Comments:	

NBE
PRODUCTION A/S
Kjeldgaardsvej 2

9300 SÆBY
Tlf. 8820 9230
CVR nr. 34 89 03 23

NBE STOKER CLOUD