



Dear Customer.

Thank you for purchasing the RTB pellet system. This product is designed and manufactured to the highest standards by NBE Productions in Denmark.

We recommend that you read this manual before you install and use the product, so you get the most out of your wood pellet system. In the event that you encounter any difficulties while installing or using your product, we recommend that you first read the instruction manual or the information contained in the support section on www.nbe.dk.

Note: There is help text on all menus in the Version 7 boiler control system and therefore menus are not described in this manual. It is recommended to study the menus before initial start-up.

Keep this manual so you always have it available if you ever need it.

- Page 2: Safety first
- Page 3: The Clean Air Act 1993 and Smoke Control Areas
- Page 4-5: Boiler specifications
- Page 6: Burner specifications
- Page 7: Boiler room design
- Page 8: Chimney design
- Page 9: Ventilation
- Page 9-10: Hydraulic system
- Page 11: Wiring diagram
- Page 12: Wiring diagram extension module
- Page 13: Electrical connection scheme
- Page 14-15: Internet connection
- Page 16: Cloud service
- Page 17: First time start up
- Page 18: Cleaning the burner & boiler
- Page 19-20: Trouble shooting
- Page 21: Preventing flue gas condensation
- Page 22: Warranty
- Page 23: EC declaration of conformity
- Page 24: Installation checklist

SAFETY FIRST



Never handle the auger, blower, nor crawl on 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 installing and/or repairing of the system. If in doubt, seek professional help.



Open top covers etc with extreme caution, 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 covers or ash tray while the boiler is in operation.



The system must only be installed and commissioned by qualified installers. If you are in doubt as to the safe operational use of the boiler, contact your dealer.

The menu structure for the controller is supported by help texts found within each section of 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. If in doubt, never alter the settings of the boiler without consulting your installer. Incorrect settings will compromise the efficiency of the boiler and could affect any warranty cover.

Your installer should give you a full hand over of the system and an overview of all functions etc.

This manual must be kept with the boiler!

The Clean Air Act 1993 and Smoke Control Areas

The RTB range of boilers listed below has been recommended as suitable for use in smoke control areas. The recommended fuel for the boiler is 6mm or 8mm diameter wood pellets to EN 14961 Part 2 class A1 wood pellets only.

RTB 10

RTB 16

RTB 30

RTB 50

Under the Clean Air Act local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance ("exempted" from the controls which generally apply in the smoke control area).

The Secretary of State for Environment, Food and Rural Affairs has powers under the Act to authorise smokeless fuels or exempt appliances for use in smoke control areas in England. In Scotland and Wales this power rests with Ministers in the devolved administrations for those countries. Separate legislation, the Clean Air (Northern Ireland) Order 1981, applies in Northern Ireland. Therefore it is a requirement that fuels burnt or obtained for use in smoke control areas have been "authorised" in Regulations and that appliances used to burn solid fuel in those areas (other than "authorised" fuels) have been exempted by an Order made and signed by the Secretary of State or Minister in the devolved administrations.

Further information on the requirements of the Clean Air Act can be found here <http://smokecontrol.defra.gov.uk/>

Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements"

Fuel

The Robus RTB pellet boilers are designed for use with ENplus A1 grade wood pellets only. The use of substandard fuels will compromise the efficiency, reduce the life span and invalidate the warranty of the appliance.

What is ENPlus?

ENPlus is the European Quality Standard for the manufacture and supply of wood pellets. Manufacturers and Distributors who have the ENPlus standard have been certified as meeting the required quality standards and they are entitled to display the ENPlus logo and their own unique License Number.

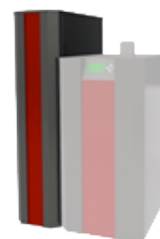
SPECIFICATIONS BOILER & VAC

Product Name	RTB 10	RTB 10 Vac	RTB 16	RTB 16 Vac	RTB 30	RTB 30 Vac	RTB 50	RTB 50 Vac
Nominal Performance	10.5 kW	10.5 kW	17 kW	17 kW	25.2 kW	25.2 kW	45 kW	45 kW
Nominal Efficiency %	93.9	93.9	91.1	91.1	91.4	91.4	91.9	91.9
Power Consumption (Nominal)	37W	37W	40W	40W	90W	90W	215W	215W
Minimum performance	3.0 kW	3.0 kW	5.0 kW	5.0 kW	7.5 kW	7.5 kW	13.5 kW	13.5 kW
Minimum Efficiency %	90.5	90.5	92.4	92.4	92.7	92.7	94.6	94.6
Power Consumption (Minimum)	24W	24W	20W	20W	34W	34W	82W	82W
EN303-5:2012 Class	5	5	5	5	5	5	5	5
Controller Version:	V7	V7	V7	V7	V7	V7	V7	V7
Width (mm)	506	506	506	506	655	655	723	723
Depth (mm)	843	843	843	843	843	843	1043	1043
Height (mm)	1022	1827	1022	1827	1022	1827	1222	1827
Chimney Diameter	100	100	100	100	100	100	130	130
Weight (kg)	162	194	162	194	179	214	250	297
Water Volume (litre)	36	36	36	36	48	48	78	78
Ash Can (litre)	31	31	31	31	38	38	60	60
Flow and return size	¾ "	¾ "	¾ "	¾ "	¾ "	¾ "	1"	1"
Test # : 300-ELAB-	2042	2042	2045	2045	2064	2064	2109	2109

BOILER AND HOPPER

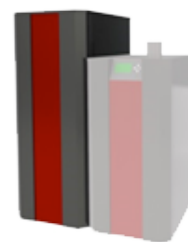
120kg:

Hopper Width	300 mm
Width (Boiler & Hopper 10&16)	806 mm
Width (Boiler & Hopper 30)	955 mm
Width (Boiler & Hopper 50)	1023 mm
Height	1300 mm
Depth	845 mm
Pellet Capacity:	120 kg
Compatible with RTB sizes:	10,16,30 & 50kW



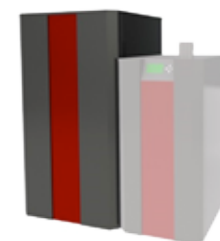
220kg:

Hopper Width	500 mm
Width (Boiler & Hopper 10&16)	1006 mm
Width (Boiler & Hopper 30)	1155 mm
Width (Boiler & Hopper 50)	1223 mm
Height	1300 mm
Depth	845 mm
Pellet Capacity:	220 kg
Compatible with RTB sizes:	10,16,30 & 50kW



320kg:

Hopper Width	700 mm
Width (Boiler & Hopper 10&16)	1206 mm
Width (Boiler & Hopper 30)	1355 mm
Width (Boiler & Hopper 50)	1423 mm
Height	1300 mm
Depth	845 mm
Pellet Capacity:	320 kg
Compatible with RTB sizes:	10,16,30 & 50kW



VAC 10/16:

Hopper Width	506 mm
Width (Boiler & Hopper)	506 mm
Height	1827 mm
Depth	845 mm
Pellet Capacity	50 kg
Compatible with RTB sizes:	10&16kW
Vacuum Transport is included.	



VAC 30:

Hopper Width	655 mm
Width (Boiler & Hopper)	655 mm
Height	1827 mm
Depth	845 mm
Pellet Capacity	70 kg
Compatible with RTB sizes:	30kW
Vacuum Transport is included.	

VAC 50:

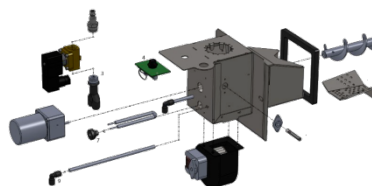
Hopper Width	723 mm
Width (Boiler & Hopper)	723 mm
Height	1827 mm
Depth	1043 mm
Pellet Capacity	70 kg
Compatible with RTB sizes:	50kW
Vacuum Transport is included.	

BURNER

10kW burner:

Hourly fuel consumption
at 10kW output:
Power consumption
At nominal output:
Weight:

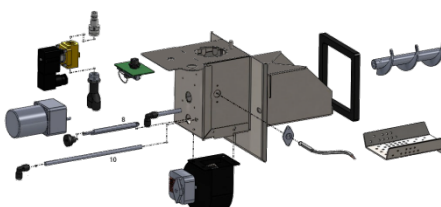
2kg
37W
10kg



16-24kW burner:

Hourly fuel consumption
At 16kW output:
Power consumption
At nominal output:
Weight:

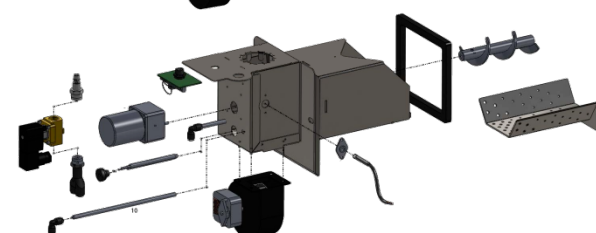
3.4kg
40W
12kg



30kW burner:

Hourly fuel consumption
At 25kW output:
Power consumption
At nominal output:
Weight:

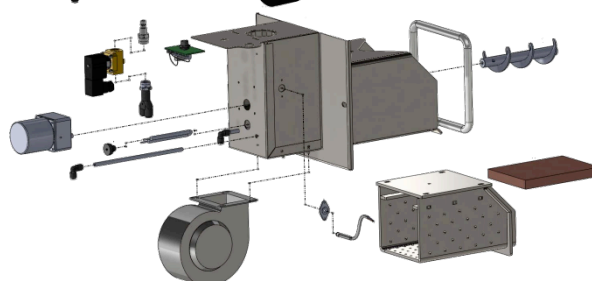
5kg
45W
15kg



40-60kW burner:

Hourly fuel consumption
At 50kW output:
Power consumption
At nominal output:
Weight:

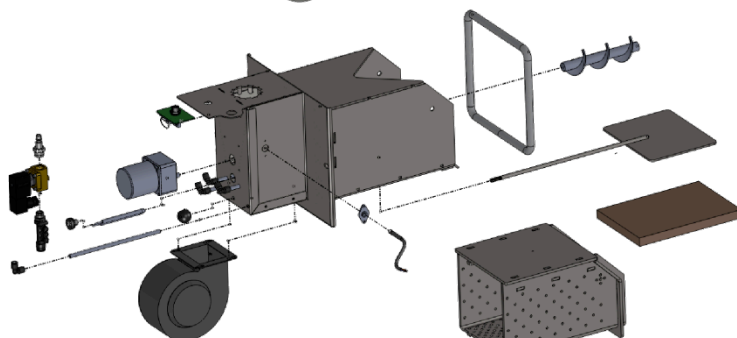
10kg
60W
30kg



80-120kW burner:

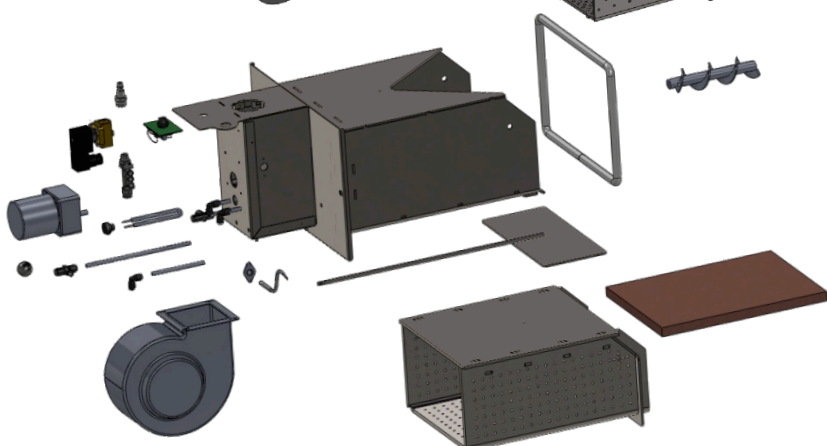
Hourly fuel consumption
At 100kW output:
Power consumption
At nominal output:
Weight:

21kg
200W
40kg



150-200kW burner:

Hourly fuel consumption
At 200kW output: 41kg
Power consumption
At nominal output: 250W
Weight: 60kg



BOILER ROOM

The boiler room for biomass boilers must be designed in accordance with building regulations. Some parts of building regulations are used in the following section of this manual to highlight the main requirements of installation. Full building regulation documents are available online from the planning portal. The RTB pellet boiler must be installed by an MCS installer who will design the boiler room to current regulations and notify building control of all the work done.

General boiler room construction.

The boiler should be housed in a dry and dust free environment. Damp and dusty conditions can affect the performance of the boiler, shorten its working life and void any warranty claims. The RTB boiler range is not suitable for installation outside. The boiler room should be well lit with enough area to refuel the boiler and work on the system safely.

Floor & wall construction.

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). For full details of solid fuel hearth construction refer to The Building Regulations Approved Document J – Section 2: Appliances burning solid fuel.

Boiler clearances.

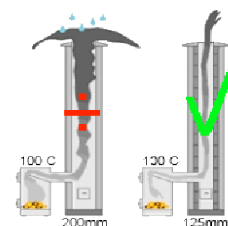
The boiler and hopper must have sufficient clearance around all sides to allow easy maintenance and cleaning of the system once installed.

Recommended clearances:

- Boiler side 500mm
- Hopper side 200mm
- Rear 200mm
- Front At least 1 x boiler width to allow door opening
- Above 1000mm

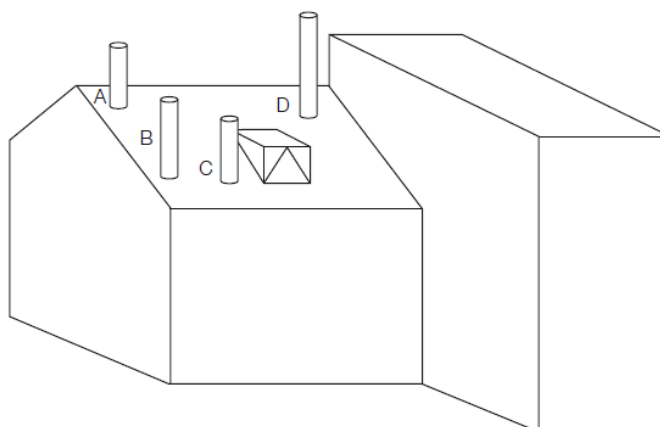
CHIMNEY DESIGN

The RTB wood pellet boiler range has high operating efficiencies and low flue gas temperatures. Correct chimney design and installation is very important to the safe and efficient operation of the boiler and should only be undertaken by a qualified installer. The cross sectional area of the chimney should not be reduced or increased.



It is recommended to always install a new chimney system with the boiler and never reuse an existing chimney. However an existing masonry chimney can be used if it is lined with a solid fuel rated stainless steel flexible liner and back filled with insulation to maintain the chimney gas temperature and prevent condensation forming. Tall chimneys may need a condensate drain installing.

The outlet of the flue should be above the roof of the building in a position where the products of combustion can discharge freely and will not present a fire hazard, whatever the wind conditions. The flue outlet positions shown here are taken from Approved Document J – Section 2 and can meet the above requirement. The heights and separation distances may have to be increased in particular cases where high wind exposure, surrounding tall buildings, high trees or high ground can cause adverse wind effects.



A stable chimney draught of between 5 and 23PA must be maintained at all times.

Point where flue passes through the weather surface (see note 1 & 2)		Clearances to the flue outlet
A	At or within 600mm of the ridge	At least 600mm above the ridge
B	Elsewhere on a roof (whether pitched or flat)	At least 2300mm from the nearest point on the weather surface and; a; at least 1000mm above the highest point of intersection of the chimney and the weather surface; or b; at least as high as the ridge
C	Below (on a pitched roof) or within 2300mm horizontally to an openable roof light, dormer window or other opening (note 3)	At least 1000mm above the top of the opening
D	Within 2300mm of an adjoining building whether, whether or not beyond the boundary (note 3)	At least 600mm above the adjacent building within 2300mm

Notes;

- 1) The weather surface is the building external surface, such as its roof, tiles or external walls.
- 2) A flat roof has a pitch less than 10°.
- 3) The clearance given for A or B, as appropriate, will also apply.

VENTILATION

The RTB range of wood pellet boiler draws air for combustion from the room in which it is located. Any such room or space containing an appliance must have sufficient permanent air supply to the boiler. The ventilation area provided must be in accordance with the requirements of The Building Regulations Approved Document J – Section 2: Appliances burning solid fuel.

It is always recommended that RTB be installed with a draught stabiliser, as such requires a permanent air vent with a total free area of at least 8.5cm²/kW to ensure the effective operation of the chimney system and discharge all of the products of combustion.

It is recommended that the ventilation is positioned on the same side of the building as the chimney to prevent any pressure difference during windy conditions.

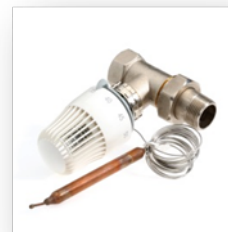
Recommended permanent free area vent sizes.

RTB 10 (10kW)	85cm ²
RTB 16 (17kW)	144.5cm ²
RTB 30 (25kW)	212.5cm ²
RTB 50 (46kW)	382.5cm ²

HYDRAULIC SYSTEM

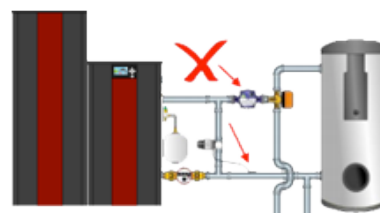
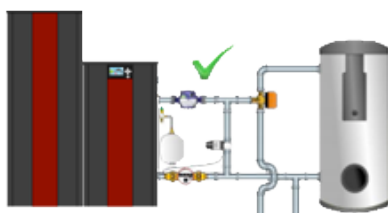
The RTB range of boiler must be installed with an approved 'shunt' or mixing valve to prevent cool return water entering the boiler. Cool return water will cause condensation to form within the combustion chamber and corrode the boiler.

Note: Failure to install an approved mixing valve will invalidate any warranty claim should one arise.



The boiler circulation pump should always be positioned in the flow pipe from the boiler between the boiler and the tee for the mixing valve. The mixing valve temperature sensor should be positioned on the return pipe between the boiler and the mixing valve tee, as

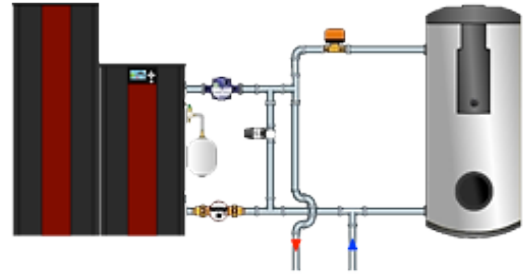
shown
below.



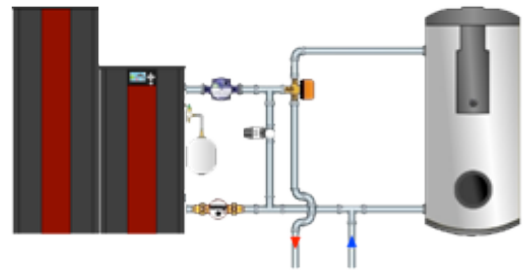
The RTB range of boiler can be installed onto either an open vented or pressurised heating system. If the system is pressurised then the pressure relief valve must be rated at no more than 2.5bar maximum, over pressure can damage the boiler and will invalidate the warranty.

Hydraulic schematics

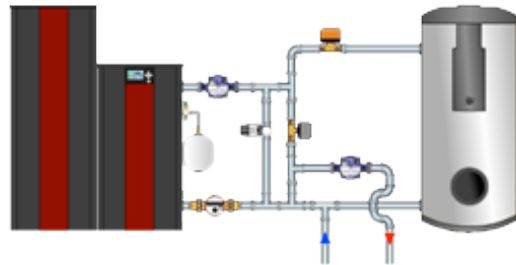
1 DHW with 2 port valve: Typically used when the DHW cylinder or the coil surface area is small. Heat for the house *is* supplied while DHW is being produced.



2 DHW with 3 port valve: Typically used when the DHW cylinder or the coil surface area 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.

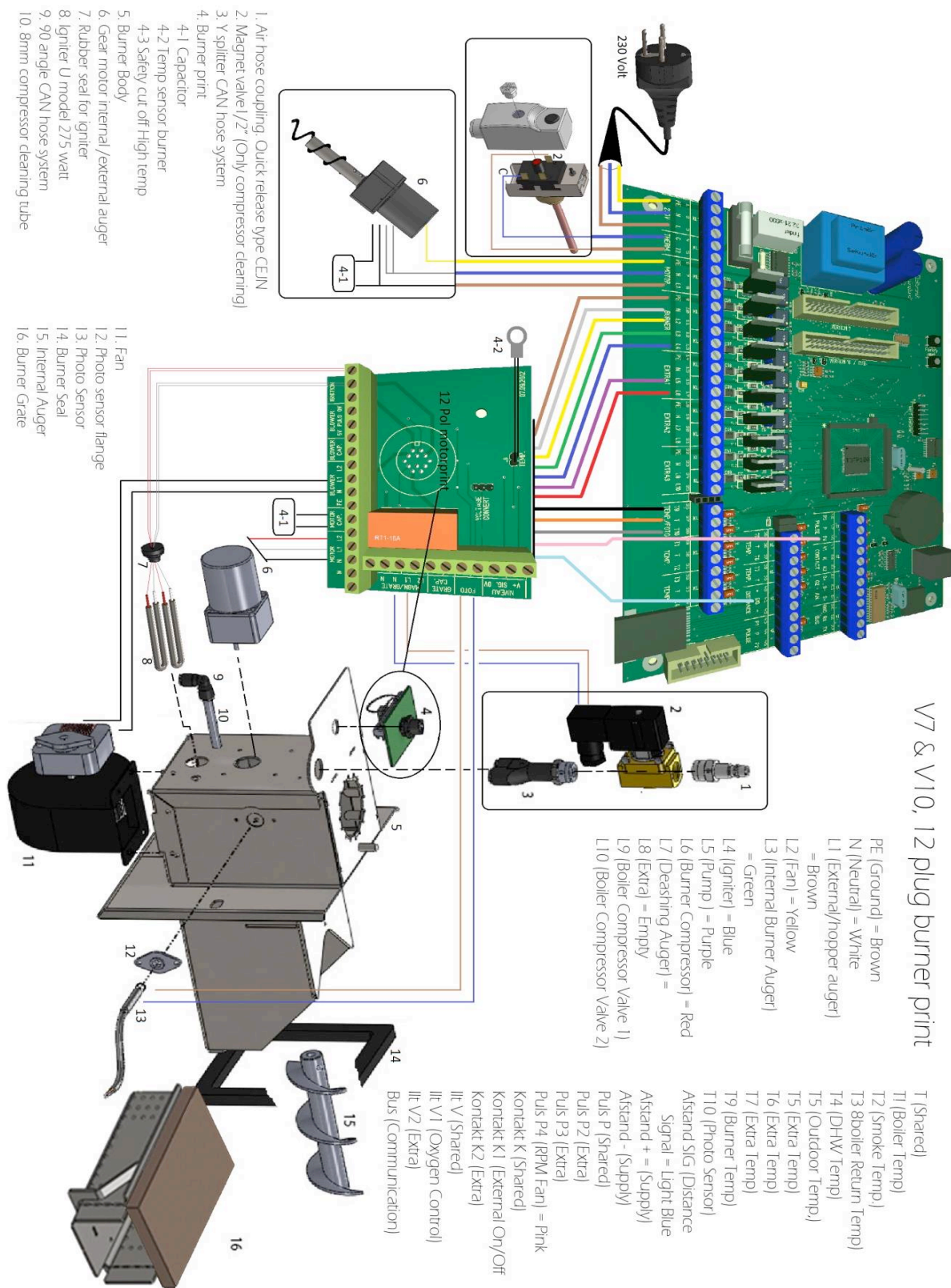


4 Weather compensation: Allows you to have a high temperature on the boiler as well as manage the supply temperature to the house in relationship to the outside temperature and chill factor.



ELECTRICAL SYSTEM

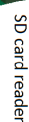
Wiring diagram V7 & V10



EXT. module for V. 7 and 10 controller.

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

- Vacuum transport.
- Compressor cleaning.
- O₂ controller.
- Hot water priority kit.
- Solar heating.
- Exhaust fan.
- Weather compensation
- Distance sensor.
- And more.



TX to RX on controller
RX to TX on controller
GND to GND on 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:

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 connections

	IN	OUT	
230	PE-N-L		230Volt AC
SAFETY THERMOSTAT	L-L		Safety thermostat cutoff
MOTOR		PE-N-L1	External auger
BURNER		PE-N-L2	Fan
BURNER		PE-N-L3	Internal auger
BURNER		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	Deashing Auger.
EKSTRA 2		PE-N-L8	Optional output for equipment.
EKSTRA 3		PE-N-L9	Boiler Compressor Valve 1
EKSTRA 3		PE-N-L10	Boiler Compressor Valve 2
BUS	GRD, TX, RX,		Expansion module
ILT	V1, V, V2		O2 controller
KONTAKT	K-K1		External ON/OFF
KONTAKT	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
AFSTAND	-, 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
	IN	OUT	

INTERNET CONNECTION

The RTB range of boilers is equipped with the latest web enabled version 7 controller. This allows remote access to the boiler for monitoring, control and adjustment. Once connected your boiler can be accessed through the Stokercloud web site www.stokercloud.dk

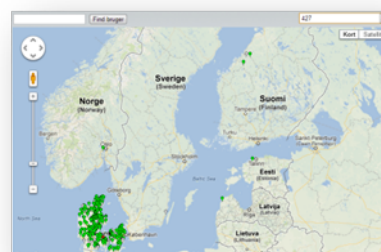
Getting connected

Step 1: Connect the controller to your router through an RJ45 cable; this is a direct cable connection so there is no wifi password required. Once the controller is connected a small icon will appear on the controller screen. If a direct connection cannot be made to the router these adapters can be used. They can establish a connection to your router through your household power cables. This solution allows for easy PLUG and PLAY.

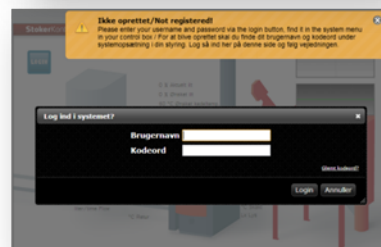


Step 2: You can find your controller serial number (user name) and password in the 'system' part of the menu.

Step 3: Go to www.stokercloud.dk and find your controller by typing your serial number in the 'find user' scroll-down at the top of the page or type your control number in the search box.



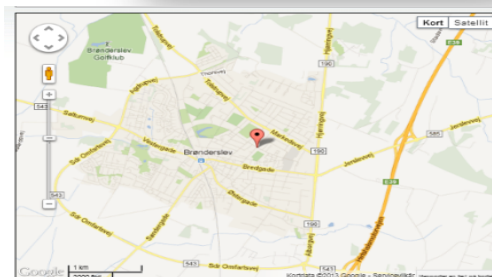
Step 4: Log in and follow the instructions on Stokercloud



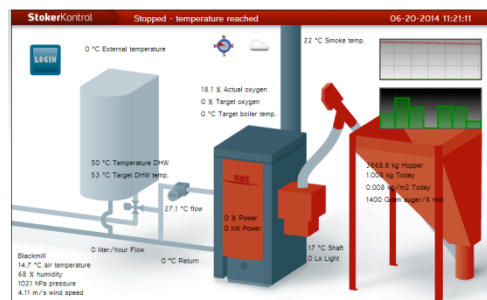
Step 5: Enter your new user name and password, your personal details and system information.

Styring serienummer	964
Styring kodeord	*****
Nyt StokerCloud kodeord	*****
Nyt StokerCloud kodeord (gentag)	*****
Ønsket brugernavn	jensj ✓
Navn	Jens Jensen
Adresse	smalbyvej
Postnummer	9999
By	smalby
Land	Danmark
Email-adr	jens.jensen@mail.dk
Sprog	Dansk
Tidszone GMT	1 - Danmark, Amsterda
<input checked="" type="checkbox"/> Jeg accepterer Vilkår og betingelser for brug af StokerCloud	
<input type="button" value="Aktiver"/>	

Step 6: Stokercloud.dk will display the location of your system via a drop pin on the stokercloud map. If you do not want others to see the exact location of your system simply move the drop pin a little.



Step 6: Once your configuration is saved you will have your own webpage and system dashboard on Stokercloud. After a short period of time you should see data streaming from the burner.



Stokercloud on your mobile.

A mobile App is available for the following devices. This will allow you to monitor your boiler from anywhere in the world.



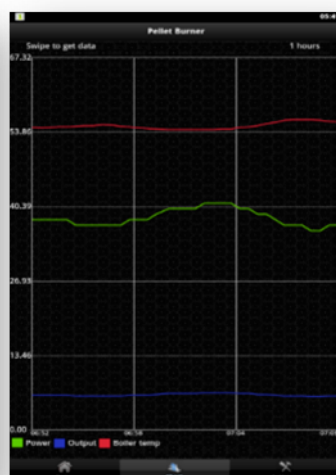
For Apple devices search 'StokerApp'



For Android devices search 'StokerControl'



For Windows devices search 'StokerControl'



Cloud service.

If your burner is registered online via our website www.stokercloud.dk we are able to monitor 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.

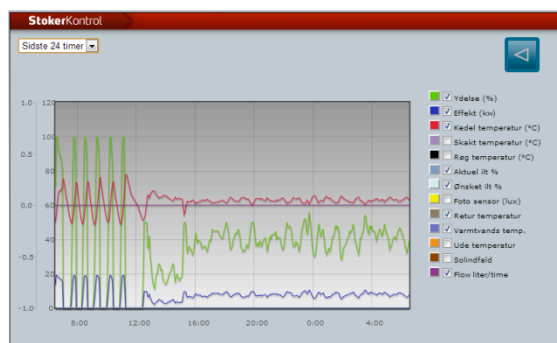


How it works.

If your system is online, NBE can observe any abnormalities that may occur. If necessary, NBE will contact you by e-mail and ask your permission to make operational changes. If permission is granted, we will monitor your systems operational graphs and burner reaction pattern, and make adjustments based on the observations. Any changes made remotely can be viewed in the 'event log' section of the controller menu.



After adjusting, it should look like this.



The Stokercloud Service gives you the peace of mind that your heating system is being monitored and if persistent faults occur or you have a poorly performing system help is at hand. You may not even realize that your boiler has a problem until you are contacted for permission to make alterations.

FIRST TIME START UP

Once the system is assembled, filled with water, supplied with power and pellets a few basic adjustments to the burner are required. Step 1 is to calibrate the external auger by weighing the wood pellet delivery. Step 2 is adjusting the fan setting at 10%, 50% and 100% power to obtain the desired O2 and CO2 readings.

Step 1: Weighing the pellets

1. Detach the drop hose from the drop tube on the burner and attach a plastic bag or similar underneath the drop hose (see image on right.)
2. Go to the menu **Manual Control>External Auger>ON**. This will force start the external auger. Allow the auger to run for approximately 15 minutes. 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.
3. Go to the menu **Auger>Balancing>360s** to activate the 360 second test. Wood pellets will begin dispensing.
4. When the test is complete, remove the plastic bag, and weigh the pellets on a kitchen scale. Enter the weight in the controller by going to the menu **Auger>Auger capacity/6 min>** enter "pellet weight"



Step 2: Adjusting the Fan

1. Turn on the system by pressing the **ON/OFF button** on the controller.
2. Go to the **Regulation** menu> set **Min power**=100% & **Max power**= 100%. This will lock output to 100% power. Allow 15 minutes for the burner to reach 100% output. (Note: when locking output to 50% power, set Min & Max power = 50%. Similarly, when locking output at 10%, set Min & Max power=10%)
3. Take a measurement of either the CO2% or O2% in the chimney using a flue gas analyzer and ensure that the CO2% or O2% at 100% power are within range to the values shown in the table below.

Power	O2%	CO2%
10%	7-9	12-14
50%	11-13	8-10
100%	15-17	4-6

If the O2% reading is too low, (or if the CO2% is too high) compared to the values on the table, then increase the fan speed to increase the O2% and decrease the CO2% in the combustion. Similarly, to decrease the O2% and increase the CO2%, decrease the blower speed. To adjust the blower speed, go to the **Fan** menu>**Speed at 100% power** and adjust the blower speed by a few % at a time. Allow a few minutes for the adjustment to take effect. Take an O2% or CO2% reading and confirm that the values shown are within the range of the values shown in the table.

4. Repeat steps 1-3 to adjust the blower speed at 50% and 10% power. Remember reset **Min power**=10% and **Max power**=100% before normal operation.

CLEANING THE BURNER & BOILER

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 is only indicative and applies only for RTB systems!*

When needed	7 days	14 days	30 days	6 months	12 months	
x				x		Cleaning cinders out of burner head
				x		Cleaning under the combustion grate
				x		Cleaning photo sensor
					x	Cleaning burner fan
x					x	Cleaning combustion chamber and flue ways
x				x		Empty the ash can, typically 1 to 2 tonnes of pellets burnt
x					x	Check and replace worn gaskets
x				x		Adjust the burner (weigh pellets)
x				x		Check O2 or CO2 levels
x	x	x				Fill the hopper
					x	Empty and clean hopper (remove dust and fines)
					x	Sweep chimney

Important note: Personal Protective Equipment must be worn while cleaning the boiler including dust masks, eye protection and gloves. Soot and ash can be hazardous to health.

Turn off the burner in connection with cleaning.

Turn off the controller and allow the boiler to cool for approx. 15 min. Once the boiler has cooled sufficiently unplug the burner, remove the shield and drop shaft then remove the burner from the boiler so work can be easily performed.

Boiler.

All surfaces inside the boiler must be brushed clean of any deposits and the ash can must be emptied. Pay special attention to any build-up of ash in the rear smoke chamber and flue. Any residual ash can be vacuumed out of the combustion chamber; special care should be taken when emptying a vacuum cleaner full of ash and soot.

Access the combustion chamber as follows:

- Remove the top casing of the boiler
- Disconnect and remove the first section of chimney
- Disconnect the air lines from the compressor clean solenoids
- Remove inner combustion chamber lid



Never dispose of hot ashes in the trash, let them cool in a metal bucket. Hot ashes can reignite when exposed to 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 wood 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. This will cause an unstable pellet supply to the burner causing the boiler to go out of adjustment with a greater risk of downtime. How often you should empty the hopper depends greatly on the design and quality of the pellets you use but do it at least once a year.

TROUBLE SHOOTING

Problem.	Possible cause.	Possible solution.
Alarm hot drop shaft	Cinders in the burner head.	More air for combustion.
	Back pressure in the boiler.	Clean the boiler etc..
	No draft in the chimney.	Increase the chimney height.
		Clean the burner head regularly.
		Switch to a better quality wood pellets.
Smoke in the hopper.	Ash in the boiler / flue.	Clean the boiler etc..
Smoke setbacks.	No draft in the chimney.	Insulate the smoke pipe.
		Increase the chimney height.
		Submerge a liner in the chimney.
		Increase temperature of the smoke.
	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.
Alarm temperature boiler.	Defective temperature sensor.	Change temperature sensor.
	Temp sensor fallen off the boiler.	Mount it correctly; attach the sensor with a cable tie.
	Power too low compared to the house.	Make a new adjustment of the burner.
		Adjust the alarm limit down.
		Add more power to the burner if possible.
Alarm motor output.	Fault current on the electric grid.	Supply the burner from another protection group.
	Relay defective.	Send the controller in for repair.
Alarm no fuel.	Hopper is empty.	Fill hopper with wood pellets and restart.
	Flame has gone in operation.	Make a new adjustment of burner.
	Photo sensor is defective.	Change photo sensor with a new one.
	Unstable fuel supply.	Empty auger / hopper for sawdust.
Plug is disconnected.	Burner plug is not fitted.	Insert the plug of the burner.
	Dirt inside the plug to burner.	Clean the plug for pellet dust.
	No connection to the burner print.	Change temperature sensor on the burner print.

TROUBLE SHOOTING

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 deactive.	Reconnect by firmly pressing the red button.
	The controller has been over-voltage.	Send controller to NBE for repair.
The burner deactivates 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 a 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 burn.	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 cleans 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 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 existing installations. It is important to prevent condensation otherwise you risk developing soot into the chimney and corrosion on the boiler.

Note: if there is water in the boiler it may come from the chimney.

Things that can prevent condensation forming in the boiler and chimney.

High chimney > 5m.	Provides a good draft in all conditions.
Maintain chimney size throughout its length	Provides better flow that will carry out more moisture.
Short un-insulated smoke pipe <0.3 m	Do not cool down the smoke unnecessarily before it reaches the chimney.
Draft stabilizer	Stabilizes the draft and provides the chimney with dry air.
High boiler temperature > 70°C	A 10 degree rise in boiler temperature gives a 10 degree rise in smoke temperature.
Suitable smoke temperature > 55°C	Condensation will form if the boiler is run at below 47°C.
Heated boiler room	Lowers cooling of the boiler and smoke pipe and provides draft stabilizer more hot air to work with.
More oxygen in combustion	Increases air flow through the boiler and carries more moisture. 1% more oxygen costs approx. 0.5% in efficiency.
Keep the heat on the boiler continuously	When using DHW priority on controller, the boiler starts from cold each time. The boiler does not dry out between each start.
Mount exhaust fan to chimney	Helps the flow of air through the chimney. The exhaust fan can be connected directly to the controller.

WARRANTY

All products purchased from **RTB-UK** are covered by the standard 1-year parts and labour warranty. This includes 12 months warranty on the products valid from the date of receipt. A 2-year parts only warranty is granted with the completion of the **Warranty Registration**.

Boiler vessel warranty.

A two-year manufacturer's parts warranty is available on the boiler vessel only if installation is done to manufacturer installation instructions, the appropriate commissioning documentation is completed and the system is registered on the Stokercloud server.

Extended warranty.

The parts warranty can be extended to 3 years and the boiler vessel to 10 years under the conditions outlined below.

- Installed by certified RTB installation company
- Products registered on Stokercloud
- Controller is online
- Consecutive annual services by certified RTB service company

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, **RTB-UK** will replace the spare part at no charge to the buyer within the first year. Buyer will be responsible for the installation or replacement of the part thereafter. If **RTB-UK** offers replacement of the defective part the purchaser shall send the part to **RTB-UK** for replacement. Guarantee shall be invalid if product failure is due to circumstances caused by the buyer; either by accident and/or abuse of the product, poor installation, inadequate cleaning, chimney conditions, as well as circumstances where **RTB-UK** has no influence. In addition, the warranty is invalid due to misuse of the burner for example using fuel that is not approved by **RTB-UK**. 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 **RTB-UK**. Returns are only made by agreement with **RTB-UK**. To the extent that **RTB-UK** is liable to the purchaser, **RTB-UK'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: **RTB-UK** 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 to **RTB-UK** or its supplier network, lack of transport opportunities, import / export prohibitions or any other event which prevents or restricts **RTB-UK's** ability to deliver. **RTB-UK** 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, **RTB-UK** will not be held responsible for any losses incurred by the purchaser due to non-delivery. **RTB-UK** 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, **RTB-UK** will be held harmless from any claims or disputes.

EC DECLARATION OF CONFORMITY

EC DECLARATION OF CONFORMITY

No. : 1709-2014

The undersigned, representing the following manufacturer

Manufacturer : NBE production A/S
Address : Kjeldgaardvej 2, DK9300 Sæby, 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 Systems: RTB 10, RTB10 VAC RTB 16, RTB16 VAC RTB 30, RTB 30 VAC RTB 50, RTB 50 VAC
--

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: ...14

Jannich Hansen

Sæby

13/09/2014



(signature)

Jannich Hansen, Director

INSTALLATION CHECKLIST

Date				
Name				
Address				
Postcode				
Boiler model				
Serial number				
1	Is the safety cut-off mounted correctly and functioning?	Y	N	
2	Is the safety cut-off triggered by pressing the red button?	Y	N	
3	Is the load valve correctly installed?	Y	N	
4	Is the pump installed on the correct side of the load valve (i.e. towards the boiler)?	Y	N	
5	Is the boiler temperature sensor properly mounted?	Y	N	
6	Is the boiler temperature sensor sufficiently secured?	Y	N	
7	Is the inside of the boiler dry?	Y	N	
8	Is a draft stabilizer mounted?	Y	N	
9	Does the chimney function under all draft conditions?	Y	N	
	Measured chimney draught with system at full power.	pascals		
	Chimney data plate fitted / position.			
10	Does the boiler room have the correct size and permanently open fresh air intake? (building regs part J)	Y	N	
	Air intake size.	cm²		
11	Has the system been 'quick calibrated' by weighing the pellets?	Y	N	
	Weight of pellets in 6 minutes.	g		
12	Has the client been informed about the importance of weighing the pellets, how to weigh the pellets, and how to perform the operation using the controller?	Y	N	
13	Are the burner fan and pellet dosing (chimney draught) settings appropriate?	Y	N	
	Fan settings.	L	M	H
14	O2 readings	L	M	H
14	Is there an owner's manual available in the boiler room?	Y	N	
15	Has the client been informed about the location of the burner grate?	Y	N	
16	Has the client been informed about boiler maintenance procedures and how to remove and insert the boiler's cleaning system?	Y	N	
17	Has the client been informed on how to change the photo sensor? YES NO	Y	N	
18	Has the client been informed on how to change the igniter? YES NO	Y	N	
19	Has a CO detector been installed to manufacturer's instructions?	Y	N	

Comments	
Remedial action required	
Engineer name	
Company	
MCS number	
HETAS number	
Signed	