

# BOINK<sup>®</sup>

## boiler unit

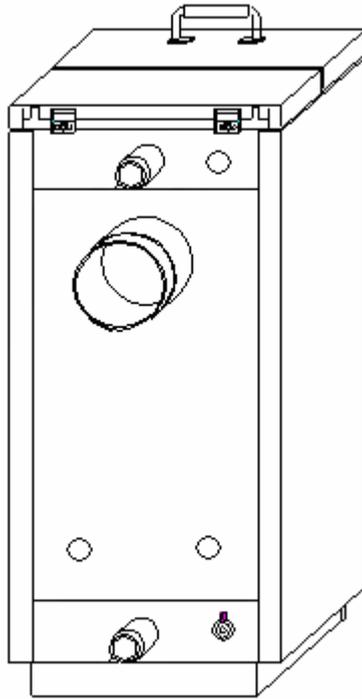
2-15 & 2-24 kw



NORDIC BIO ENERGY LTD  
*Pellets Systems.*



# Montering af Kedlen.



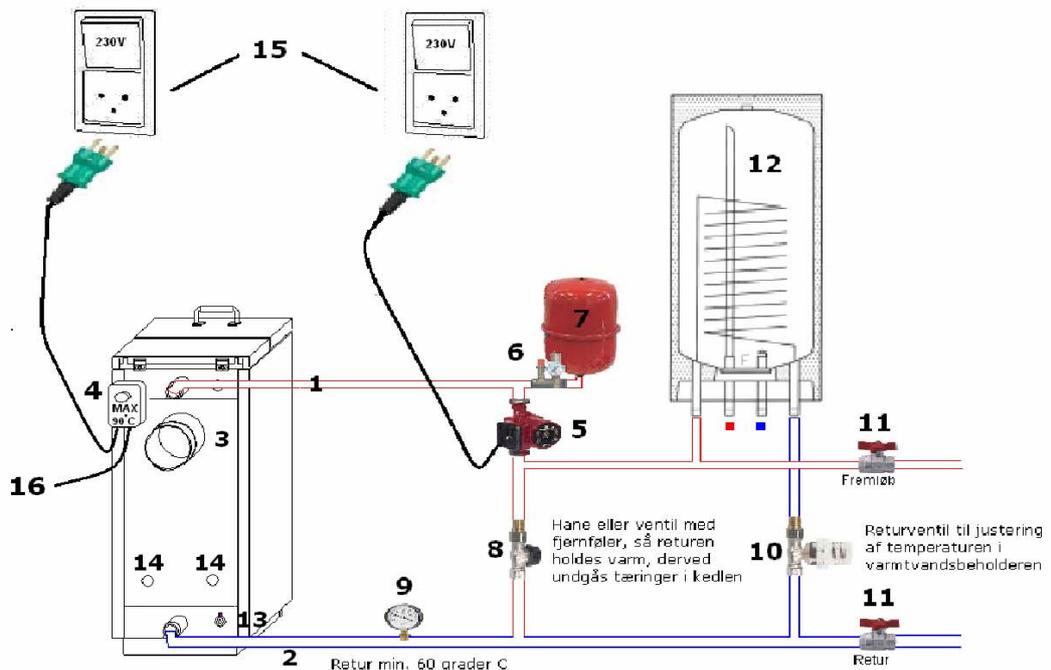
	16 Kw	24 Kw	30 Kw	40 Kw
H	865 mm	865 mm	865 mm	1005 mm
W	386 mm	386 mm	490 mm	490 mm
D	533 mm	533 mm	533 mm	533 mm
Flue	130 mm	130 mm	160 mm	160 mm
Water content	26 L	26 L	35 L	42 L
Weight	160 kg	160 kg	200 kg	235 kg
Connection	1 1/4 "	1 1/4 "	1 1/4 "	1 1/4 "

- 1: Forward movement.
- 2: Return.
- 3: Flue connection.
- 4: Over-temperature safeguard with sensors.
- 5: Pump.
- 6: Safeguards set 2.5 bars.
- 7: Pressure expansion.
- 8: Return valve with remote sensors/ Tap.
- 9: Thermometer.
- 10: Return valve.
- 11: Taps.
- 12: Hot water containers.
- 13: Feed.
- 14: Cooling circuits intern.
- 15: Power 220 V 50 Hz 10 Amps.
- 16: Connector to pellet burner

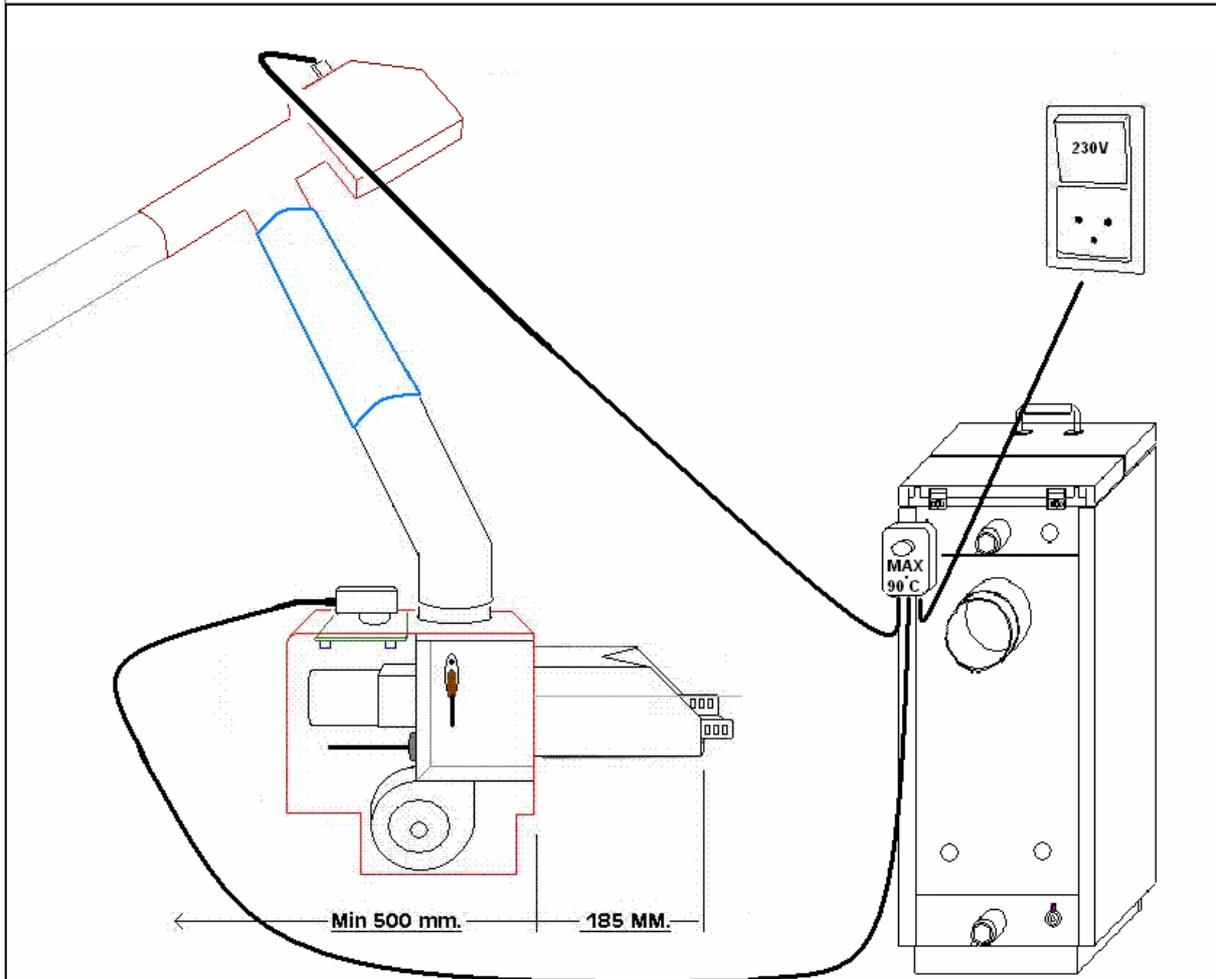
**Boiler should be installed by an authorized installer and should be installed per publication 42 by the Danish Working Environment Authority concerning water-borne installations.**

Exhaust pipes should not be more than 1 m in length and should be fitted with an access door.

The flue pressure should be at least 10 PA and shall be stable; it is recommended that a pressure stabilizer is installed. Upon condensation of the gas in the flue, a pressure stabilizer is installed in the flue, or the rear guard is opened (valve in the boiler's rear guard), so that the gas temperature is increased.



## Mounting the boiler.



1. Place the burner in the hollow on the boiler; use the two wing nuts that are included.
2. Mount the over-temperature safeguard in an inversion pocket.
3. Mount the power to the control via the priming circuit breaker so that the power is broken if the temperature of the boiler exceeds 95 degrees in the event of a fault.

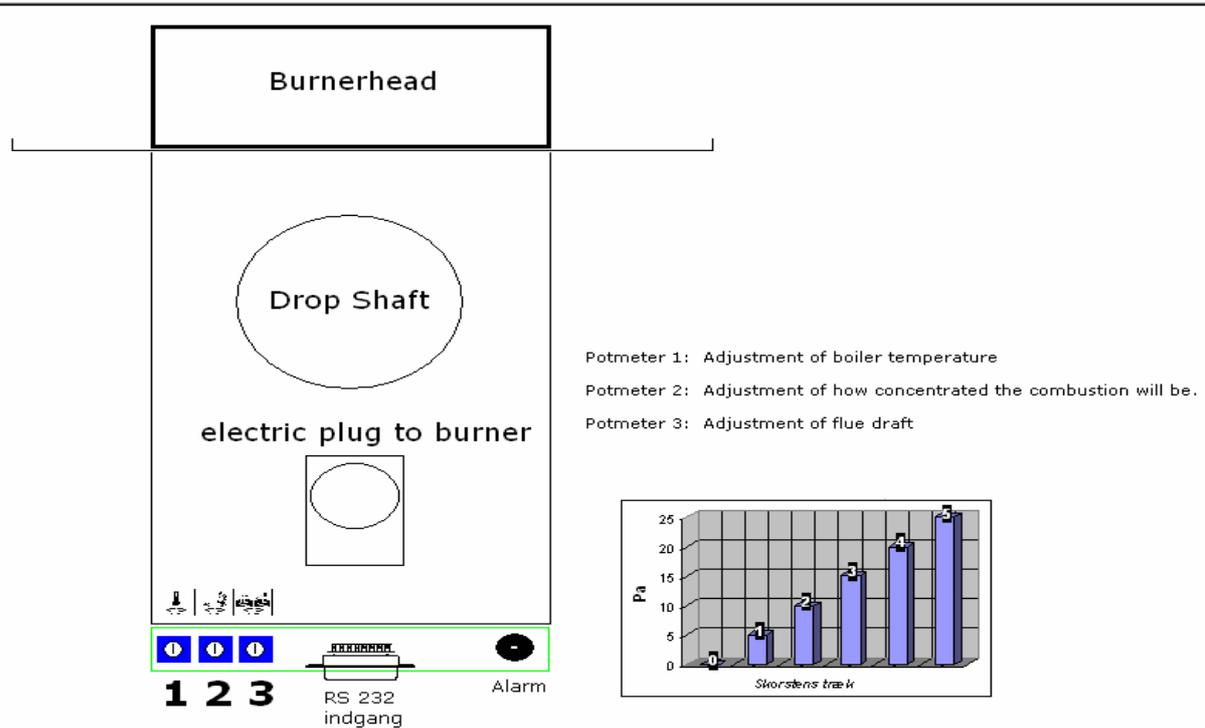
### External feed screw:

4. Mount the screw with outlet over the burner, so the pellets can fall into the burner effortlessly.
5. The more the feed screw is mounted at an incline, the less it releases.  
Adjust the control according to this!
6. Ensure that the melter hose is angled enough so the pellets end up in the burner, shorten it if needed.

### Starting the unit the first time:

7. Ensure that there are pellets at the inlet of the external feed screw. (Screw in the pellet silo)
8. Remove the photo sensor from the pellet furnace the pellet furnace, ensure that there is light and connect the power.  
The furnace runs as if it is fired up and the feeder screw is slowly filled.  
This takes approximately 30 – 45 min.  
When the pellets fall out of the feeder, break the power and re-mount the photo sensor.  
Turn on the power supply but without the shield so that adjustments can be made, if needed.
12. The alarm is cancelled by shutting off the boiler at the point (220 volts)

# Adjusting the burner.



The burner is started up without a shield so that any necessary adjustment can be made. After adjustment the shield is placed back on, to that the burner temperature measurement will be correct and the blower is enclosed to avoid accidents.

**Pot meter 1:** Adjustment of boiler temperature, if a higher temperature is desired, pot meter 1 is turned clockwise, and counter-clockwise to lower the temperature, can be adjusted from approx. 50 degrees to 70 degrees.

**Pot meter 2:** Adjustment of how concentrated the combustion will be, if a stronger combustion is desired, pot meter 2 is turned clockwise, and counter-clockwise if a weaker combustion is desired.

**Pot meter 3:** Adjustment of flue pressure. If this is adjusted clockwise, the burner gives more wood pellets in low load and in firing pause. If adjusted counter-clockwise, it gives fewer pellets in low load and firing pause. It is recommended to always install a pressure stabilizer, so that the flue pressure can be kept as stable as possible.

**RS232:** Opens up a new world of possibilities for: (Extra equipment ) Usage count, weekly clock, log of boiler temp., gas temp., shaft temp., Light sensor, electrical activation use, output, etc.

Adjustment of all parameters, change of pot meter values, etc...

**Alarm:** When the burner sets of an alarm, it emits a sound:

- 1 BEEP, 10 sec. pause, etc.: **LOW BOILER TEMPERATURE.**
- 2 BEEP, BEEP, 10 sec. pause, etc.: **INCORRECT ELECTRICAL ACTIVATION.**
- 3 BEEP, BEEP, BEEP, 10 sec. pause, etc.: **WARM DOWNPIPE .**

# Adjusting the burner.

## Adjusting the effect in high and low load.....

The control system runs a 10-step modulation and changes between these steps itself.

### Feed adjustment.

In daily boiler operation, one should open the doors to the burner and assess the flame. Each time, the pellets one burns are changed (dust, pellet length, etc....), the feeder screw will also dose the pellets differently and will therefore have an influence on the burn.

**If the flame is fat** (Dark, possibly with black points) or the ash is black with black pellets.

Fewer pellets shall be added

**Pot meter 2 is adjusted counter-clockwise**

**If the flame is thin** (little flame and like a sparkler) or the ash is light grey.

More pellets shall be added

**Pot meter 2 is adjusted clockwise**

**If the flame is fat in low output** (Dark, possibly with black points) or the ash is black with black pellets.

Fewer pellets shall be added to the bottom.

**Pot meter 3 is adjusted counter-clockwise**

**If the flame is thin** (little flame and like a sparkler) during low output or the ash is light grey.

More pellets shall be added in the bottom.

**Pot meter 3 is adjusted clockwise**

**The boiler may not smoke, but shall be close to smoking**

(make sure that you do not confuse smoke with steam from condensation).

Correct burn normally produces a dark grey ash; however there can be variations from wood pellet to wood pellet.

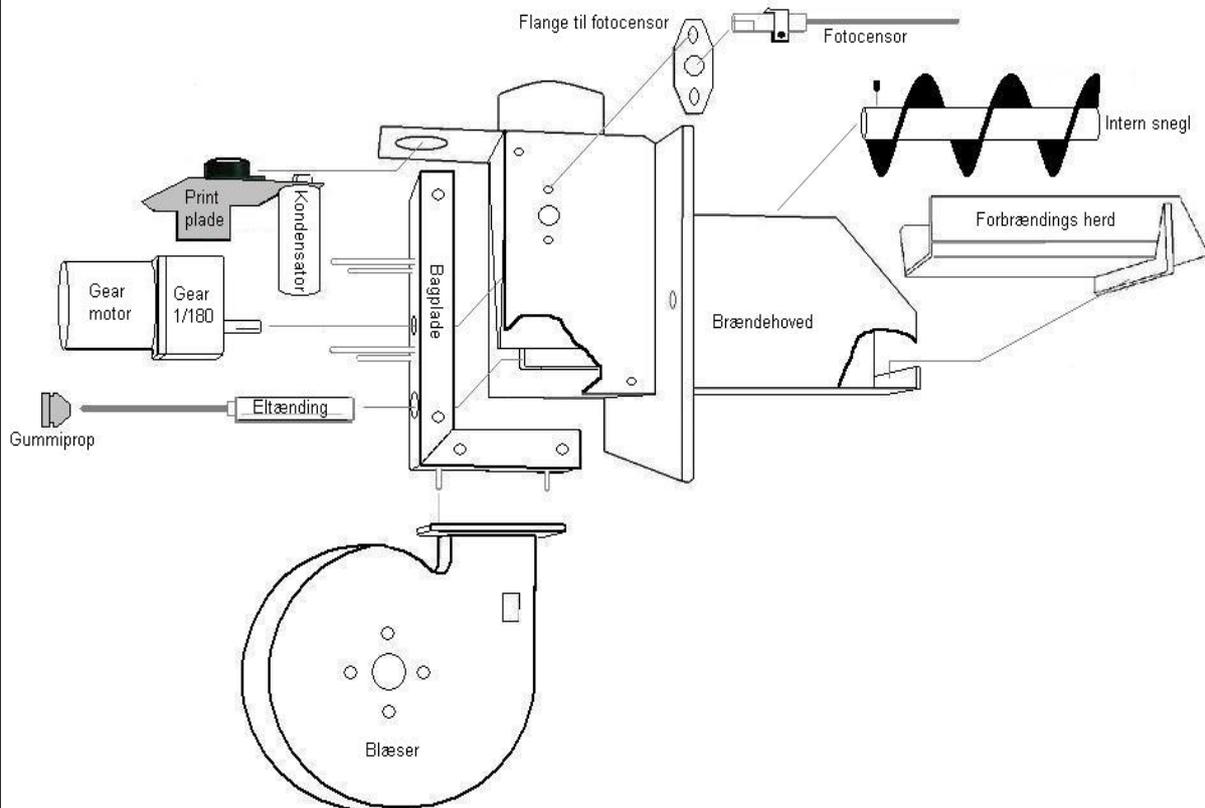
A white and light ash in the boiler indicates a surplus of air that is too great.

It is very important to the fuel economy in wood pellet burning, that the boiler is adjusted correctly.



## Fuel types

The burner is intended for wooden pellets with a diameter between 6-8 mm, which do not burn to cinders.



# Rensning af brænderen.

## Switch off the burner in connection with cleaning .....

Switch off the control system (hold in the DOWN button for 5 sec.) and the burner will cool down for approx. 5 min., when it has shut down completely it is ready for cleaning.

Take the connector off the burner, remove the shield and down pipe and screw the boiler off of the boiler, the parts can now be worked with.

**Cleaning should be done frequently and according to needs.**

**This guarantees the best fuel economy and operation.**

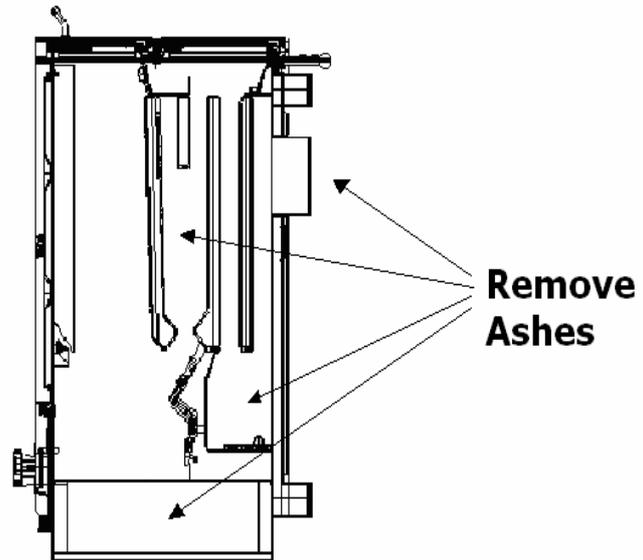
**The more well suited the boiler is to one's needs, in addition to heating with better quality pellets the longer time the intervals between cleaning can be increased.**

## The boiler.....

The boiler shall be emptied from ash and all of the surfaces shall be brushed in order to remove soot particles.

Be extremely careful of ash in the gas deflector and chimney pipe.

The chimney sweep DOES NOT clean the chimney pipe, you must do this yourself ..... an old vacuum cleaner or ash bucket, is particularly suitable, as the ash does not normally contain soot and tar.



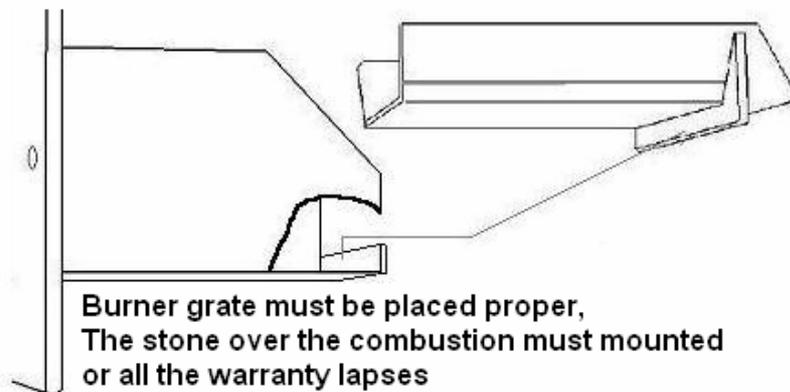
## The burner head.....

Remove the ash and any cinders from the unit.

Remove any pellet remains under the unit.

Dry off the flame indicator.

Ensure that there is nothing in the blower.



**Burner grate must be placed proper,  
The stone over the combustion must mounted  
or all the warranty lapses**

## The pellet silo.....

As the pellets that you put into the silo contain dust, you should empty the silo completely from time to time.

The more dust that is in the silo, the less the feed screw will release and the boiler will become unadjusted with the risk of

a breakdown. How often one should empty the pellet silo completely depends on the design of the silo and the quality of the fuel one burns.

## Start-up after cleaning .....

The pellet boiler is assembled and is lit (turn on the power )

and the boiler will then start up itself.

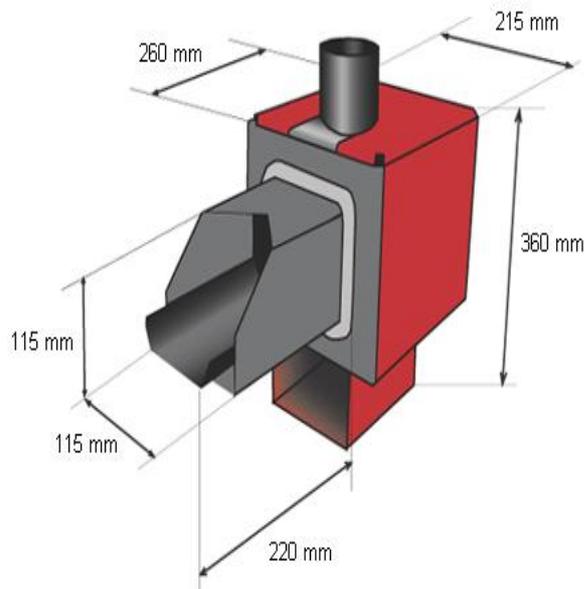
REMEMBER to put the shield back on so that the burner temperature will be measured correctly.

## Faultfinding on the burner.

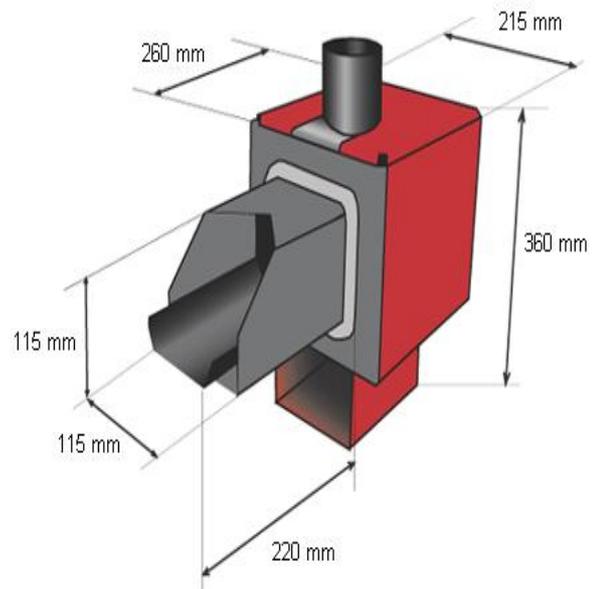
Problem	Cause	Solution
<b>ALARM WARM DOWNPIPE, SMOKE BLOW-BACK</b>  <b>BEEP-BEEP-BEEP</b> <b>10 sec. Pause</b> <b>BEEP-BEEP-BEEP</b> <b>10 sec. Pause</b>	<ol style="list-style-type: none"> <li>1. Cinders/ash in the burner head.</li> <li>2. Ash in the boiler, smoke gas pipe and chimney.</li> <li>3. Gas deflector boiler incorrectly mounted.</li> <li>4. Lack of draught in the chimney.</li> <li>5. Sensor defect.</li> <li>6. Unfavourable wind force.</li> </ol>	Clean the burner! Clean the boiler, smoke pipe and chimney! Correct or remove the gas deflector plate in the boiler! Isolate the smoke pipe, raise the chimney! Change the thermo sensor on print. Contact a chimney sweep.
<b>ALARM FAULT ELECTRIC IGNITION</b>  <b>BEEP-BEEP</b> <b>10 sec. Pause</b> <b>BEEP-BEEP</b> <b>10 sec. Pause</b>	<ol style="list-style-type: none"> <li>1. Flue grate is not positioned correctly</li> <li>2. Ash/cinders in the burner head.</li> <li>3. Damp pellets.</li> <li>4. Electric ignition is positioned incorrectly</li> <li>5. Defective electric ignition.</li> <li>6. Chimney draught too high.</li> <li>7. Photo sensor defective/sooty.</li> <li>8. Blower stopped.</li> </ol>	Square hole out of the burner Clean the burner! Change supplier /increase maintenance! Adjust the amount by approx. 1 dl! Place in the square holder. Change the electric ignition/ignite manually! Mount a draught regulator on the chimney. Clean/change the sensor. Clean the blower and check whether it runs.
<b>ALARM LOW BOILER TEMP.</b>  <b>BEEP</b> <b>10 sec. Pause</b> <b>BEEP</b> <b>10 sec. Pause</b>	The boiler temperature has not been above 35°C after 2 hours of operation, or has gone below 35°C degrees during operation.	Too little effect on the burner. Check the feed / pellet supply /the blower! Check whether the temperature sensor is on the boiler
<b>No power on the system. and no sound alarm</b>	<ol style="list-style-type: none"> <li>1. The over-temperature safeguard on the boiler has been knocked out.</li> <li>2. Fuse in the control system has been blown.</li> </ol>	Reconnect the over-temperature safeguard! Change the fuse. Check for short circuits!
<b>The boiler triggers the HFI relay.</b>	<ol style="list-style-type: none"> <li>1. Electric ignition defective.</li> <li>2. Cables defective.</li> </ol>	Change the electric ignition/ignite manually! Check the cables and plug, Note the state the boiler is in when the relay is engaged!
<b>The boiler goes out during "LOW LOAD/ PAUSE"</b>	<ol style="list-style-type: none"> <li>1. Thin flame.</li> <li>2. Fuel supply unstable.</li> <li>3. Pellets hang in the hose.</li> </ol>	Check the feeder inlet for sawdust. Check the pellets for dust/moisture. Check the feeder screw incline. Check the fall from the feed screw to the
<b>Pellet consumption too high/ desired boiler temperature not reached.</b>	<ol style="list-style-type: none"> <li>1. Burn incorrectly adjusted.</li> <li>2. Chimney draught too high.</li> <li>3. Gas deflector incorrectly mounted in boiler.</li> <li>4. Poor boiler /rate of efficiency / isolation</li> <li>5. Burner effect too high.</li> <li>6. Water in the pellets / poor quality.</li> </ol>	Check that the ash is dark grey! Measure the chimney draught / mount the draught regulator. Check the boiler, mount the gas deflector. Measure the gas temperature, after isolate the boiler! Decrease the effect on the burner.
<b>Boiler and burner are sooty / black.</b>	<ol style="list-style-type: none"> <li>1. Feed times too high.</li> <li>2. Pause firing incorrectly adjusted.</li> <li>3. Blower stopped.</li> </ol>	Adjust saturation Adjust flue pressure Rinse blower!

**labelling the alarm, shut off and turn on the control unit.**

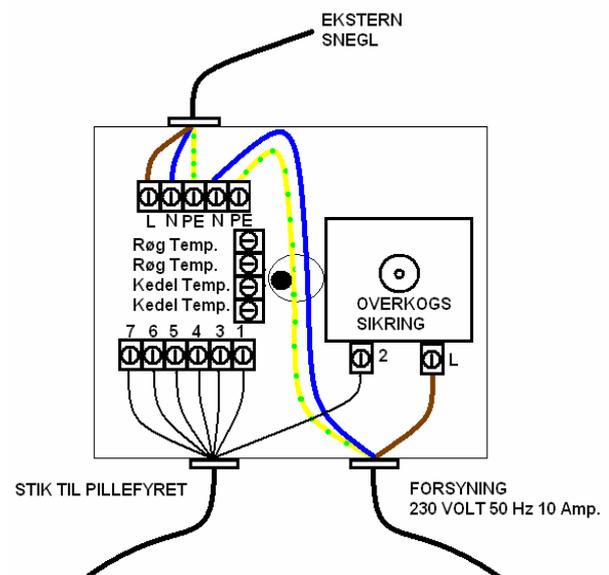
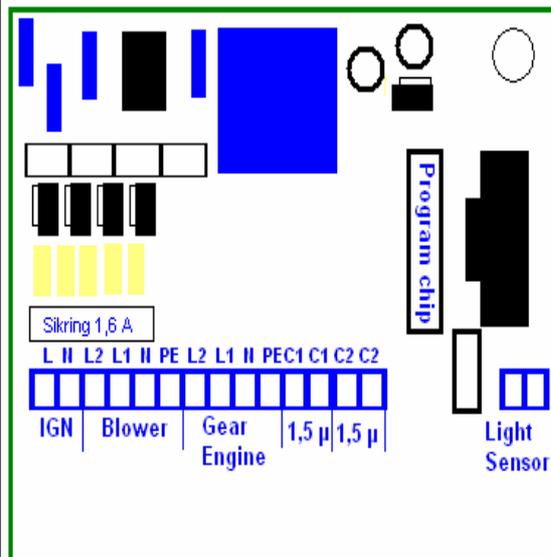
# Electric diagram and measurements of the pellet boiler



16 - 24 Kw



30 - 40 Kw



# Samvejledning af pillesilo.

