

EFFECTA LAMBDA 25/35/60

- INSTALLATION
- MAINTENANCE
- SERVICE
- ASSEMBLY



■ United Kingdom "Clean Air Act"

Effecta Lambda has been recommended as suitable for use in smoke control areas when burning wood logs.

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.

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"

Contents

UK Clean Air Act	2
Contents	3
Warranty	4
General	5
To the installer	6
System components	7
System components	8
Emergency cooling	9
Environment	10
Component placement	11
Technical data	12
Function Laddomat 21-60	13
Sleeve placement Accumulator BBS	14
First firing	15
Firing cycle	15
The menu system	16
Electrical installation	17
Shunt control sensors	18
Shunt control heating curves	19
Shunt control heating curves	20
Cleaning and maintenance	21
Cleaning and maintenance	22
Door cleaning function	23
Door adjustment	24
Rotate the door	25
Hydraulic scheme	26
Draft reducer	27
Pellet burning	27
Mounting the pellet burner	28
Components for swiveling mounting arm	28
Ceramics kit	29
Ceramics replacement	30
Air damper components	31
Troubleshooting	32
CE marking and Type plate	33
	34
Spare parts lambda	35

■ Warranty

Products from Effecta are guaranteed free of defects with regards to materials and workmanship for two years for wear parts such as gaskets, pumps, ceramics and electrical components from the date of installation. The wood boiler's welded body has a warranty period of five years. This warranty also includes original spare parts. Any defective products are replaced or repaired as per assessment by the retailer concerned, or by Effecta. When replacing a faulty product, Effecta reserves the right to replace it with a new one or a renovated one of the same or equivalent type.

In the case of a complaint, Effecta must be contacted before any servicing begins. Complaints must be made promptly. A complaint must always describe the type of product, date of purchase and serial number.

Otherwise, in the case of a complaint, the HVAC industry's current regulations apply.

Warranty conditions:

The warranty requires that:

- Installation of the product and the heating system have been done according to the installation instructions and have been performed professionally.
- The location where the product is installed is designed to make it suitable for this end.

The warranty does not cover:

- The heating system's overall operation, downtime costs or costs for temporary replacement of the product.
- Damage caused by negligence during the installation, usage which is contrary to the installation and user instructions.
- Damage caused by abnormal wear, improper care or improper maintenance.
- Damage that occurs due to placement in an unsuitable location.
- Damage caused by vermin.
- Damage that occurs due to cold.

Facility data:

To be completed when the system is installed / serial number is located on the product label on top of the boiler and on the front of the accumulator tanks.

Date:	
Installer:	
Serial number:	
Electrical installer:	

■ General

Effecta Lambda is a wood boiler with an induced-draught fan. The boiler is fired with wooden logs measuring 50 cm for 35kW and 60kW, 40cm for the 25kW. The boiler must be docked to one or more accumulator tanks, which are charged with charging equipment of the Laddomat 21-60 for 25kW and 35kW, Laddomat 21-100 for the 60kW, type or equivalent. Hot water is taken from the top of the boiler and is conducted to the accumulator tank. Return water from the accumulator tank is conducted via the charging unit to the bottom of the boiler. The water is conducted from the accumulator tank to the radiator circuit via a shunt valve that mixes the water to the desired temperature.

Hot water preparation

For hot water storage, the accumulator tank must have a built-in hot water coil or equivalent. The temperature of the hot water is adjusted by means of a mixing valve. The amount of hot water that can be tapped depends on the accumulator tank temperature, size and the incoming cold water flow.

Combustion

On the front of the boiler, there are two air inlets. The dampers are controlled by two motors that receive a signal about the oxygen level from the lambda probe to obtain the best possible environmental value and thus the best efficiency. Normally, the preset values do not need to be adjusted for different wood types and humidity levels.

System description

Effecta Lambda has a recommended accumulator tank volume of, 25kW 1000-2000, 35kW 1,500-2,500 and 60kW 3000-6000litres. If a smaller volume is installed, the boiler's performance may no longer be optimal. During installation, a charging coupler with a thermal valve must always be connected, for example Laddomat 21-60 or 21-100. A wood boiler that is connected to one or more accumulator tanks has a number of advantages,

- The boiler's loading compartment can always be filled with wood
- The user normally has a long interval between firings
- Extended life for the boiler and wear parts
- The boiler is always fired at maximum output
- The environment and efficiency receive the best performance levels

Always try to select an accumulator tank size that will allow you to fire no more than once a day. When a new firing commences, the boiler fan starts up in order to provide combustion air and prevent smoke emission. When the boiler reaches a temperature of 72°C, the accumulator tank starts to charge, and the charging equipment ensures that this is done using layering. When the accumulator tank is heated, the fan and the charging pump stop. The warm water in the accumulator tank then heats the house via a shunt valve or automatic shunt. The hot water is controlled with a mixing valve.

■ To the installer

It is time to install the Effecta Lambda wood boiler. Please follow the examples we provide for a safe installation. After installation, be sure to instruct the customer on how the heating system and the boiler work, in order to avoid unnecessary complications in the future.

Responsibility of the installer

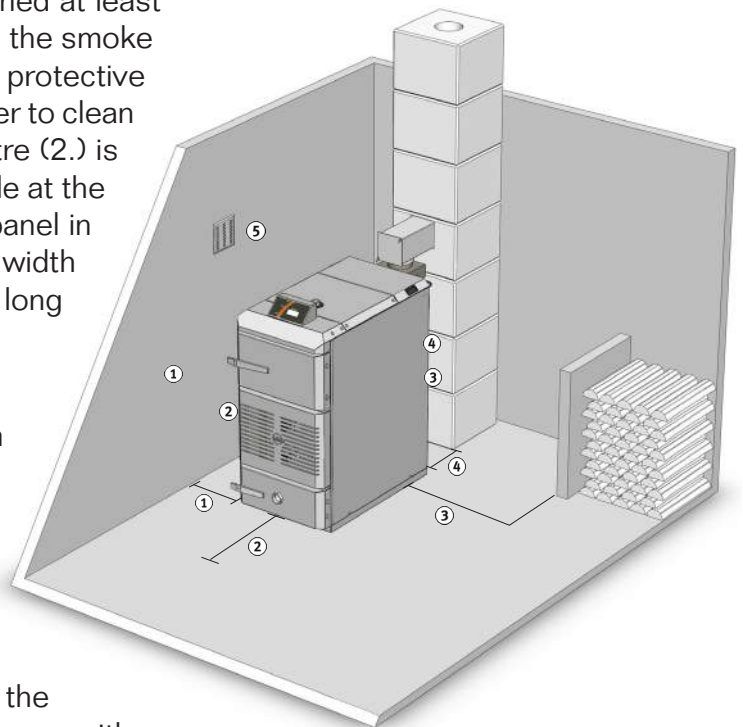
The installer is obliged to confirm that the appliance and associated installation work comply with the applicable parts of the Building Regulations of the country of installation.

Set up

The boiler is positioned so that the surface temperature of flammable building material not exceed 80°C. The boiler should be positioned at least 15 cm (1.) from the wall. The distance from the smoke connection to a flammable wall with ignition protective covering must be at least 30 cm (4.). In order to clean the boiler, a minimum clear space of 1 metre (2.) is required in front of the boiler and on the side at the convection section and at any inspection panel in the chimney. A passage with a minimum width of 0.5 (3.) m is required along one of the long sides of the boiler.

The boiler room

The boiler must be installed in a boiler room or boiler house. The ceilings and walls must be fitted with ignition protective covering and the floor must be made of non-combustible material. Minimum ceiling height at the boiler is 2 metres. The boiler room or boiler house must be equipped with a fresh air intake with the minimum dimensions 150 x 150 (5.) mm or with a sufficiently large free sectional area to avoid low pressure in the boiler room. It must be impossible to close the air intake.



Accumulator tank

Be sure that the accumulator tanks are well insulated. For the Effecta Lambda to function as optimally as possible, an accumulator tank volume of 1000-3000 litres is required. Depending on model.

Chimney

The chimney should have a diameter of at least 150 mm. If your chimney is smaller, Effecta should be consulted before installation. The draught in the chimney should be about 15 pa at low temperatures. It is important that the chimney is tested and approved by a certified chimney sweep before a new boiler is installed. If the chimney has a strong draught, a draught stabiliser (see page 24.) may need to be installed for good boiler operation. If you have a tall chimney and an outgoing flue gas temperature below 170°C, there is a risk of condensation in the chimney, which can damage the chimney in the long term. A suitable temperature is 70-80°C one metre down into the chimney. Ask your local chimney sweep for help to measure the temperature. If the chimney is tall and has a large area, a draught that is too strong may mean high levels of flue gas and over ignition in the loading compartment. If this is the case, a counter draught door must be installed.

■ System components

Laddomat

Laddomat or an equivalent product should always be installed between the boiler and accumulator tank. The Laddomat is described in detail on page 12. The Laddomat prevent the boiler from being overheated by sending the cold water from the accumulator to the boiler in case of a power failure.



Shunt automatic system

The installation of a shunt automatic system on the radiator circuit is always recommended. The automatic system senses the temperature in a suitable location in the house and adjusts the incoming temperature on the radiator circuit accordingly. This measure can reduce your wood consumption by as much as 25 % and will improve your heat comfort level.



You need to connect a sensor to the moterboard G7 in order to see the menu "Heating system"



Expansion vessel

The expansion vessel can normally withstand a pressure of 6 bar. Maximum operating temperature is 99°C. The volume of a pressure vessel is 10-12 % litres depending on the system's overall volume. An open vessel must contain 5 % of the total system's volume. When planning for size, keep in mind the radiator volume and the volume of the boiler. A pressure vessel must have a first pressure of 0.2 bar above the highest radiator.



Safety valve

The safety valve opens if the pressure reaches 1.5 bar. When the valve opens, excess water drips out and the system pressure is reduced. The pressure must under no circumstances exceed 1.5 bar. **AT LEAST ONE SAFETY VALVE MUST BE INSTALLED!** See connection scheme for where to install the safety valve.



Shunt valve

The shunt valve is fitted to the radiator circuit. Its task is to mix accumulator tank water with recycled water from the radiators to achieve the correct temperature of the radiator water. For the installation of the shunt automatic system, please follow the supplied description.



■ System components

The valve kit

The valve kit is fitted to the hot water circuit, and is installed to pre-mix the water before it reaches the tap point. This means you avoid burns and the temperature can be easily adjusted. If it is not installed, mixers at tap points will deteriorate and break.



Pipes

Normally copper piping is used for connection of the system. Connection between accumulators must be a minimum of 28 mm. If pipe length is more than 6 metres to the first accumulator tank, 35 mm pipes are recommended. Remember to insulate the pipes between the accumulators to avoid large losses from the system.



Accumulator tank

Effecta Lambda must always work with some sort of heat storage. Normally this is an accumulator tank where you get your hot tap water and radiator heat. The accumulator tank is described in more detail on (page 13.)



Draught limiter

We recommend that you always install a draught stabiliser in your chimney. The stabiliser will give the boiler a more even draught and will improve function. In addition, Effecta Lambda closes its air damper after firing is complete, which prevents downdrafts through the boiler. This can sometimes lead to a high back pressure during new firing, since the chimney is cold. This is prevented with a draught stabiliser.

(See page 24.)

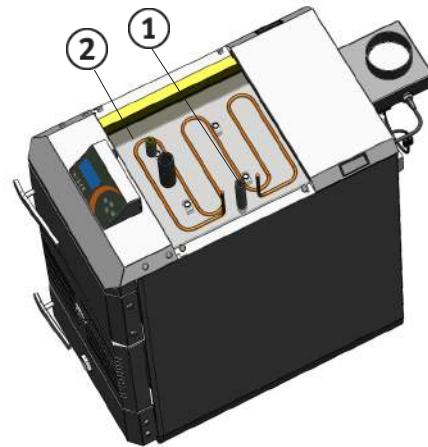


■ Emergency cooling

In accordance with the EN303-5 standard the boiler is tested with a emergency cooling coil. When firing solid fuels in a pressurized system it is at all times recommended to use the cooling coil. The function of the cooling coil is to prevent overheating in the event of power failure during a fire cycle or other blockage of the hydraulic system not letting the boiler cool down as intended.

Cooling coil

A thermal dump valve should be installed to the coil (1.) and measure the temperature in the sensor pocket (2.). For instance SYR3065 will service as intended. The outlet from the cooling coil should be direct connected to a fixed drainage to sureguard that the flooded water couldnt leak to the boiler room. NOTE: The drainage should be of such type that it can handle high temperatures of 95-100 degrees celcius for an extended period of time.



For more information about the thermal dump valve we recommend you to read the suppliers documentation. Variations between different suppliers and types of thermal dump valves may occur. Our references is taken from Somatherm AB and their products.

Environment

Surroundings

When you heat with wood, you must fire in a way that is efficient to the environment and your surroundings. It is important that you think of the people who live around you. Try to remember the following things below.

The fuel

Effecta Lambda is tested for firing with wood logs. The choice of wood type has no significant impact on boiler operation, with the exception of beech, birch and oak, which have a higher energy value than softwood. This means that the accumulator tank is heated faster with hardwood than with softwood. Beech, birch and oak are slightly heavier than softwood, which means that the wood is pressed together better in the loading compartment, which makes for a denser and more uniform gas production, which in turn makes the boiler more stable during firing. Firing with only oak creates a higher wear on the ceramic tray. We therefore recommend that oak is mixed with other wood types.

Wood log typ	kWh/m ³ f*
Oak	2900
Birch	2650
Pine	2350
Alder	2100
Spruce	2050
Aspen tree	2000

* kWh per solid cubic meter of fuel.



When firing, larger and smaller logs of wood should be mixed with the largest at the top of the loading compartment. Do not fire with only finely chopped wood or conversely, if you heat only using small blocks of wood, the boiler may end up at a higher effect level than tested for, resulting in a shortened life span on wear parts such as ceramics etc.

If you fire up using only larger pieces of wood, the boiler will probably burn at a lower power output with low flue gas levels as a result. This can damage the chimney, since condensation may form.

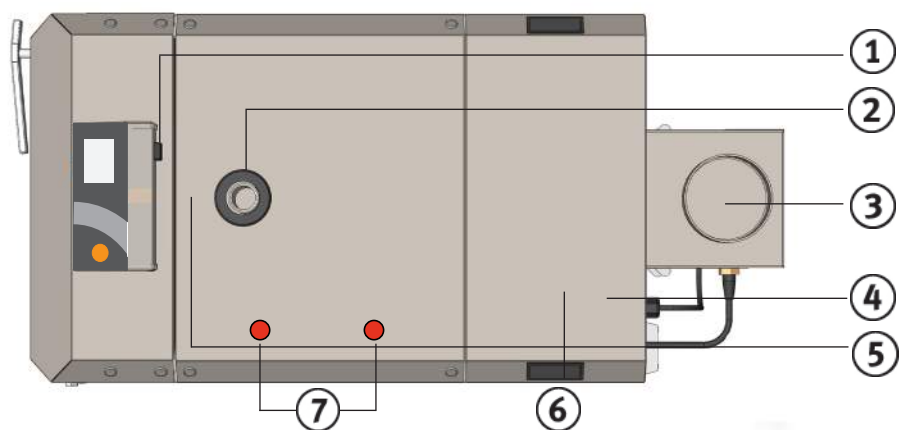
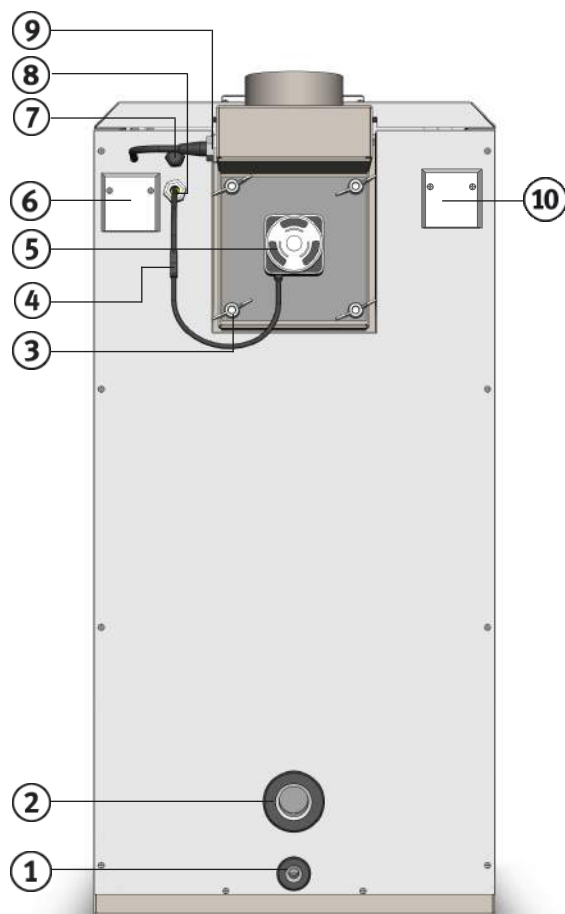
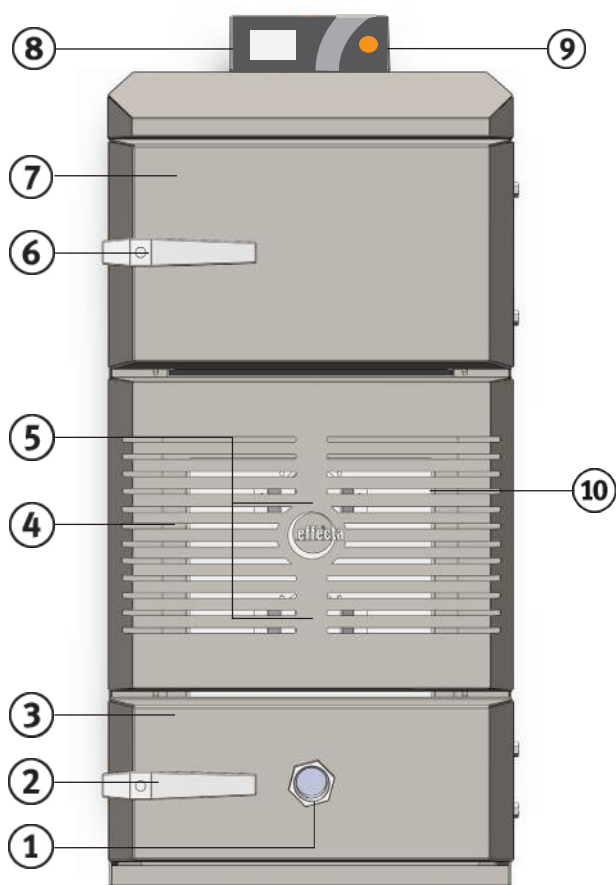
Never heat using hazardous waste such as treated or stained wood, household waste, plastics or rubber, etc.

Fuel storage

In order to use Effecta Lambda in the best possible way, the quality of wood must be good. It is important that the wood has been stored so that the moisture content is between 15-20 %. Chop the firewood into 5-15 cm pieces.

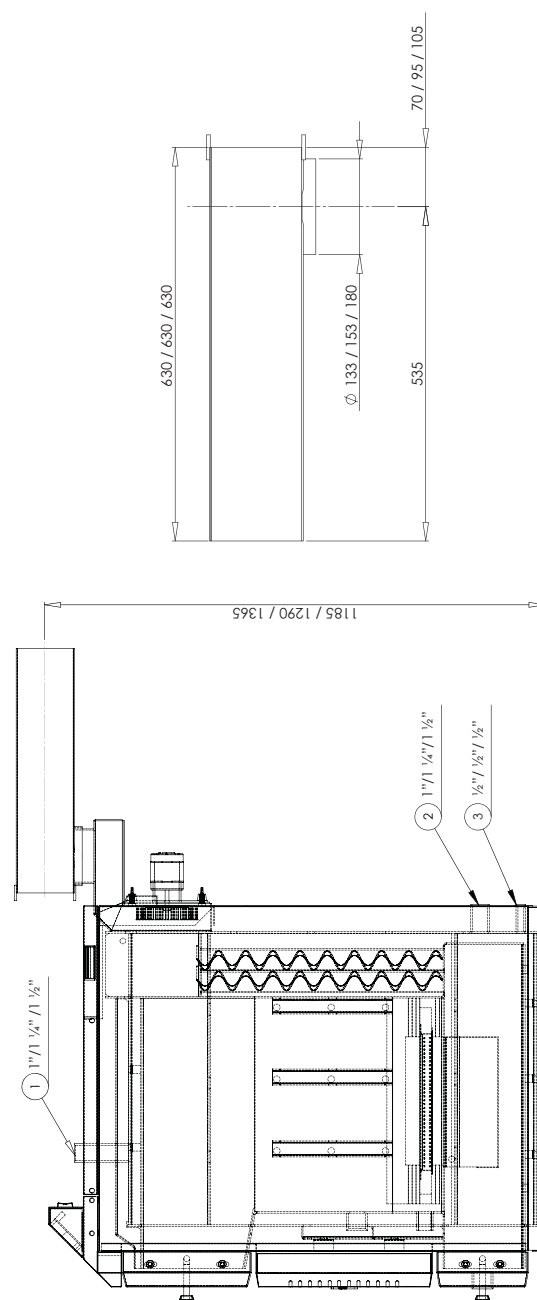
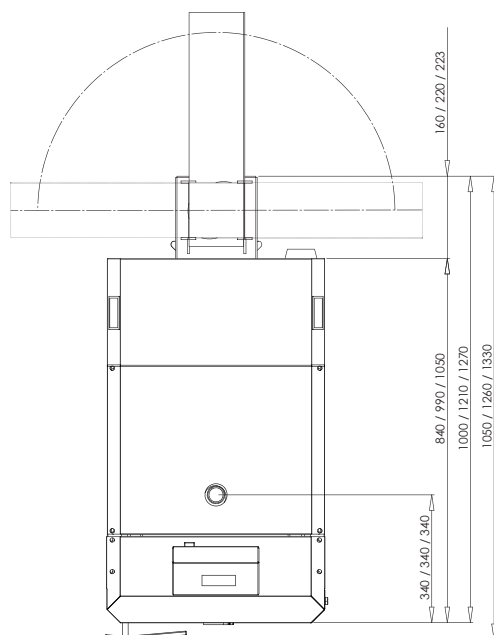
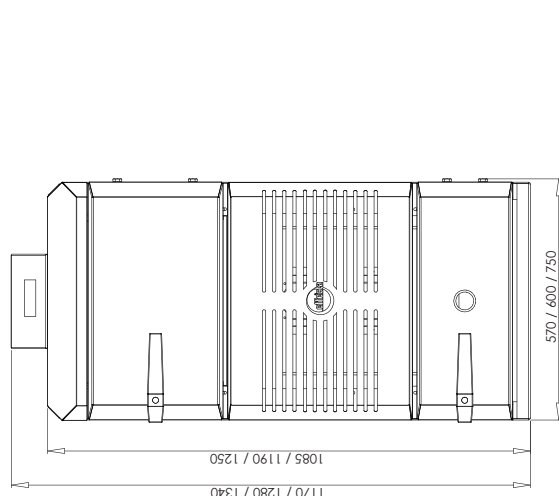
Try to use the sun and wind to a maximum: when you store the wood, the wind should be able to blow through the wood for quick drying. Keep in mind that efficiency is sharply reduced if the wood is wet.

■ Component placement



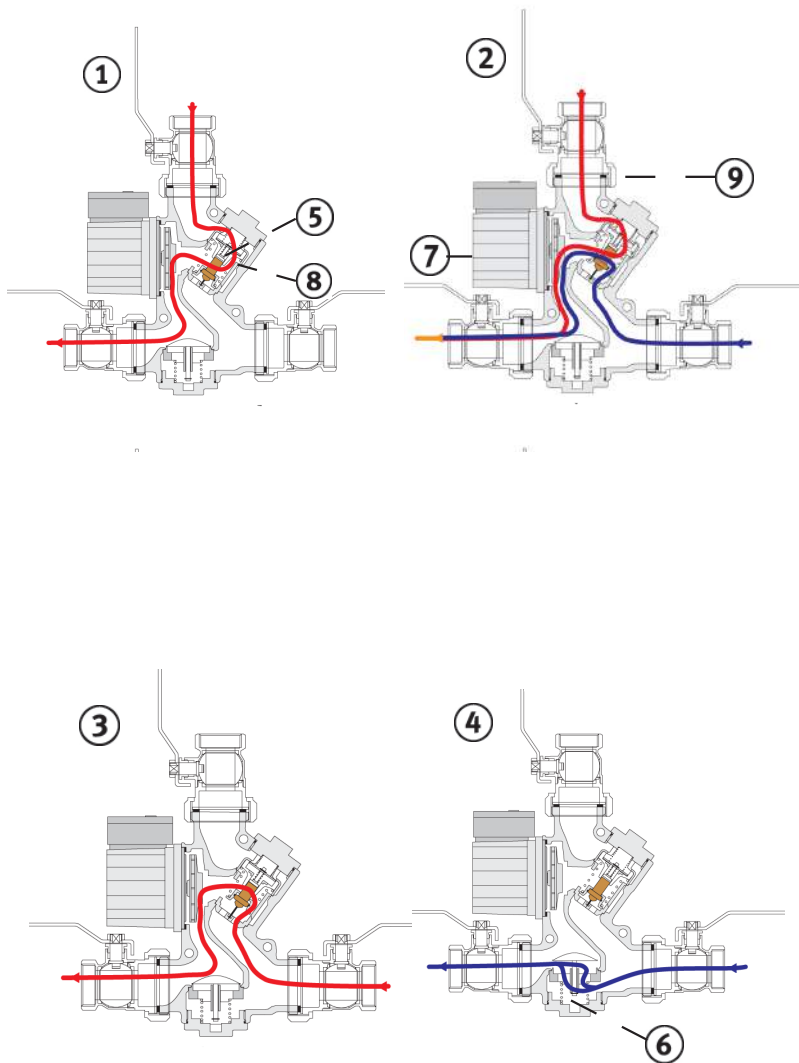
	Front		Back		Top
1	Inspection glass	1	Drain cock	1	Control switch
2	Handle soot door	2	Return pipe	2	Incoming pipe
3	Soot door	3	Wing nut for detaching fan	3	Smoke connection
4	Air intake	4	Splice connector fan	4	Cover plate for soot door
5	Damper motors (behind plate)	5	Fan	5	Sensor boiler temp
6	Handle loading compart. door	6	Connecting box (boiler)	6	Flue gas sensor
7	Loading compartment door	7	Thermal protection	7	Cooling coil
8	Control panel	8	Power supply for fan		
9	E-burn control	9	Lambda sensor		
10	Connecting box(motherboard)	10	Connecting (box pellet burner)		

Technical data



EXPLANATIONS	
1. FLOW LOADING FITTING	
2. RETURN LOADING FITTING	
3. DRAIN COCK	
TECHNICAL DATA	
Weight	350/400/540 kg
Max operating pressure	3.0/3.0/1.5 bar
Water jacket	70/90/135 liter
Log length	400/500/500 mm
Draught requirement	0.15 mbar
Min chimney diameter	130/150/180 mm
Electrical supply	230 VAC
Steel thicken. outer case	4 mm
Steel thicken. inner case	5 mm
Loading volume	100/145/195 liter
Loading depth	450/550/550mm
Effect fan motor	100 w
Boiler effect	25/35/60 kW
Max oper. temperature	100 gr
Min. rec. buffer vol.	1000/1500/3000 liter
 EFFECTA AB Västra Rågdalsvägen 21 - 43408 Kungsbacka Tel. 0300-22320 - Fax 0300-22395 E-post: info@effecta.se - www.effecta.se	
UPPER CASE	RT42 AV
DATE	012-09-13
ANS/ARG	ANS/ARG
DATE	012-09-13
EFFECTA LAMBDA 25 / 35 / 60	
EFFECTA WOODY 25 / 35 / 60	
SCALE	NUMBER
V50-04-52	RET

Function Laddomat 21-60



1. **Start-up** when the boiler temperature is below 78°C, the cartridge has not opened, the beam for self-circulation is tight against the accumulator tank due to pump pressure.

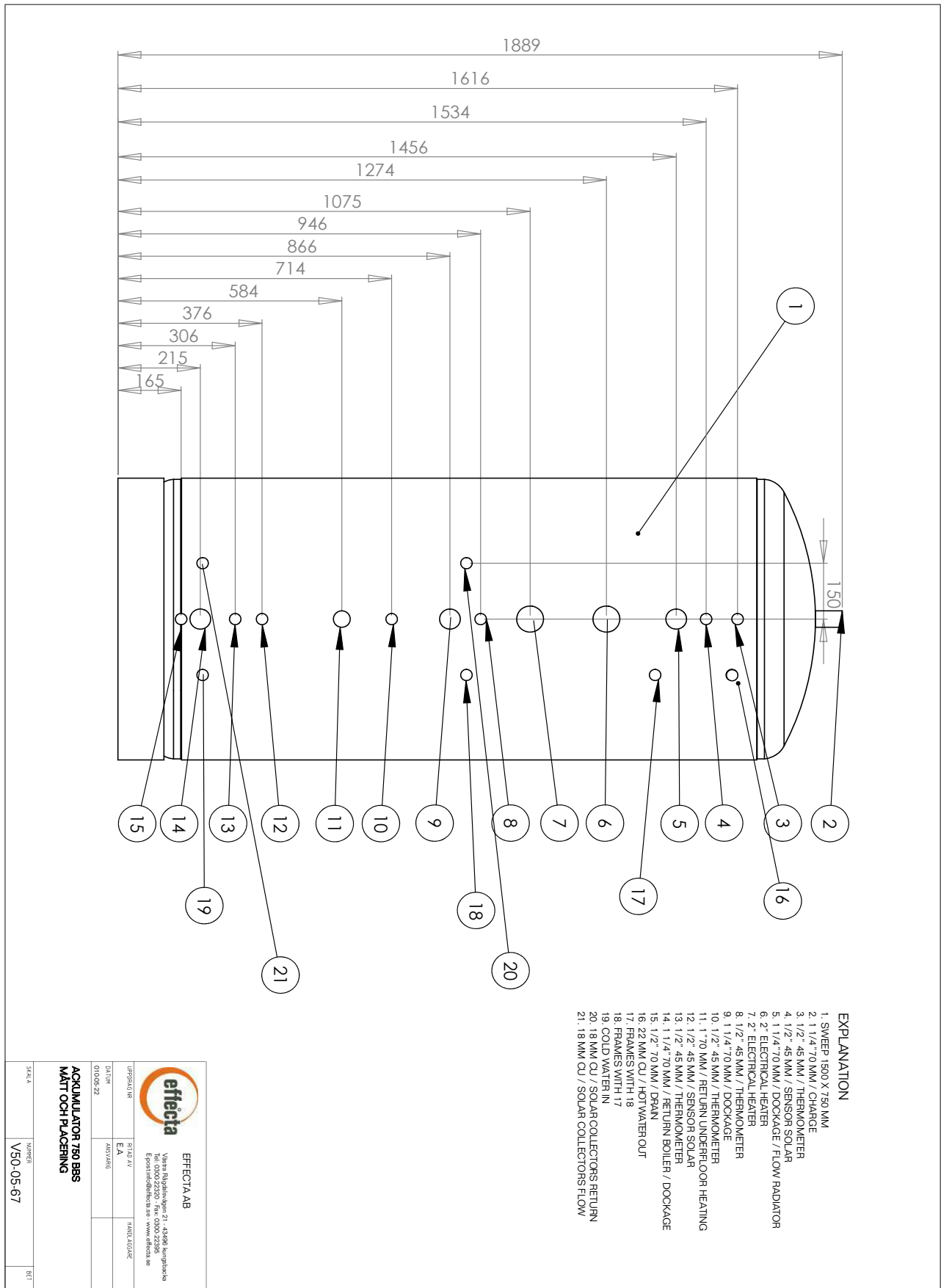
2. **Operational phase** when the boiler temperature exceeds 78 °C, the cartridge opens and mixes cold water from the accumulator tank. Boiler water return temp is normally about 70°C. At 90°C from the boiler, the Laddomat normally gives 66°C back to the boiler.

3. **Final phase** When the accumulator tank is fully charged, hot water will enter on the cold side of the Laddomat. Then the plunger opens fully toward the accumulator tank and closes the pipe toward the top of the boiler. All flow now goes to the accumulator tank. This feature is important for the accumulator tank to charge fully.

4. **Self-circulation** In the event of loss of electricity or failure of the circulation pump, the check valve is opened for self-circulation. This will normally prevent boiling unless the accumulators are fully charged or the piping presents an obstacle for circulation.

5	Thermal valve
6	Check valve for natural circulation
7	Circulation pump
8	Spring with housing
9	Filling valve for the system

■ Sleeve placement solar accumulator tank BBS



■ The first firing

Remember that during the first firing the boiler can feel sluggish and tough to fire. This is because all the metal surfaces in the boiler are clean and cooled against the boiler water, the ceramics also has some moisture that needs to dry. This uses energy from the wood, so the boiler can feel a bit sluggish.

During the first firing, there is also a lot of oxygen in the water so it can sound as if it is simmering in the boiler. This will go away when the system has been heated a few times.

The control switch should always be switched on. Place a handful of finely chopped dry wood at the bottom of the loading compartment. Then take plenty of paper and place on top of the wood.

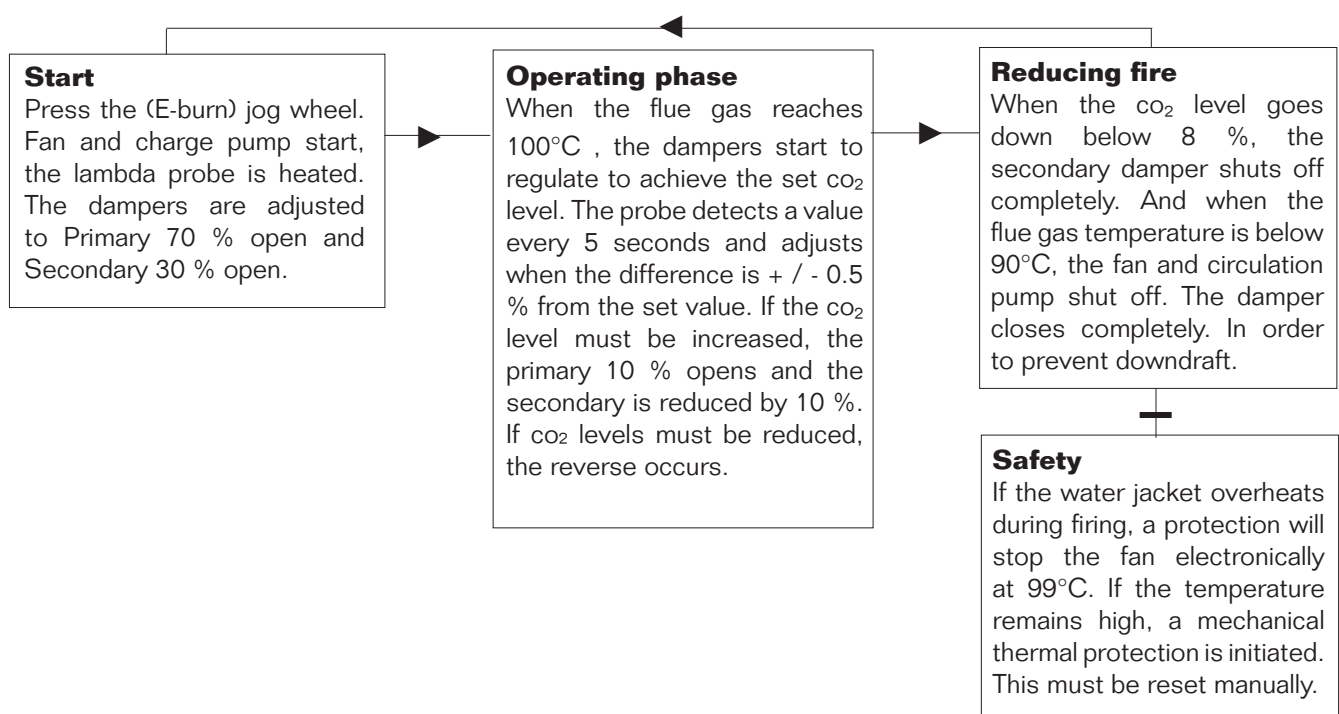
- Press the jogwheel (E-burn) to start the fan and the charging pump, then ignite.

The lower door must be shut and the loading compartment door can be ajar but it can also be closed. Test the way that suits you best. When the wood has ignited and there is a bed of embers, the loading compartment can be filled with wood. Start by adding smaller pieces of wood at the bottom and increase the size the further up in the loading compartment you go. Remember to stack the wood carefully. It is important to get the best possible effect of the firing. When it has burned for about 15 minutes, the flame will fill the bowl that you see in the inspection glass in the lower door. The boiler burns at its best if the combustion is left on its own. It is therefore not appropriate to stir the in the box during firing. If you open the door during firing, there is a risk of flashover in the box, with poorer function as a result.

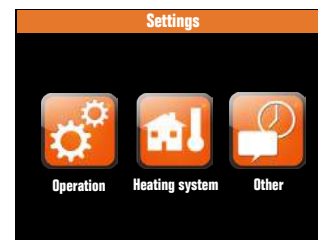
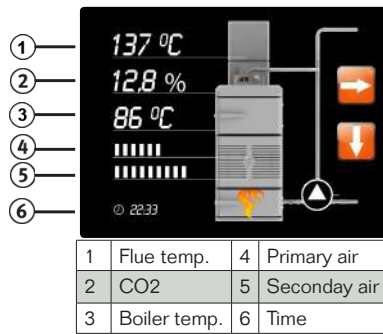
If you burn a lot of dry wood and have a strong draught in the chimney, you may hear a whispering sound in the air dampers. This does not impair the boiler combustion or function, but to avoid this you have to install a counter draught door that maintains a stable draught in the chimney.

NOTE: In case of a second insertion, there is a small risk of smoke emission. Therefore, wait until the flue reaches a temperature just above 100°C. Open the door carefully to release any gas and smoke from the loading compartment if necessary.

■ Firing cycle



The menu system



Operation settings

Lambda probe	yes	Activate lambda sond yes/no
Co2	12.0%	Level of Co2
Use pellets	No	Activate pellet mode yes/no
Emergency mode	No	Activate emergency mode yes/no
Cleaned boiler	No	Have you cleaned the boiler yes/no
Operating time	0h	Time the boiler has operated
Time betw.clean.	40h	Preset time between cleaning

Use pellets

Use pellets	No	Activate pellet mode yes/no
Chimney fan	No	Activate chimney fan
Chimney fan	85°C	Set temp for chimney fan to start
Loading pump	No	Activate loading pump
Start	55°C	Set temp for loading pump to start

! In order to display the menu "Heating system" you need to connect a sensor to the motherboard G7.



Shunt control

Sensor	Indoor	Choose of program for heating
Room temp	20.0(19) °C	Actual room temp(desired room temp)
Flow temp	25(60)°C	Actual flow temp(desired flow temp)
Radiator pump	On	Activate loading pump. On/Off
Max flow temp.	60°C	Highest allowed flow temp
Min. flow temp	10°C	Lowest allowed flow temp
Max room temp	20°C	Highest allowed room temp
Min room temp	10°C	Lowest allowed room temp
Heating off	15°C	Outd.temp for turning off Heating system
Outdoor temp	16°C	Actual outdoor temp
Heat curve		
Slope	40°C	Slope of the heat curve
Adjustment	0°C	Adjustment of the heat curve
Energysaver	>	Day/Night reduction
DHW Priority	No	Domestic Hotwater priority

Energy saver

Energy saver	Off	Energy saver On/Off
Lowering temp	3°C	Set how many degrees you want to lower temp.
Mon	▼24 ▲05 ▼14 ▲16	You can set two lowering sessions each day
Tue	▲22 ▼06	
Wed	▲22 ▼06	
Thu	▲22 ▼06	
Fri	▲22 ▼06	
Sat	▲22 ▼06	
Sun	▲22 ▼06	

▼ Set time for lowering temp
▲ Set time for lowering temp to stop

Other settings

Date	>	Set date
Time	>	Set time
Calib. sensors	>	Calibrate sensors, if needed
Function test	>	Function test of all functions
Alarms	>	History of alarms
English	>	Choose language

Calib.sensors

Sensor G1	0°C
Sensor G2	0°C
Sensor G3	0°C
Sensor G4	0°C
Sensor G5	0°C
Sensor G6	0°C
Sensor G8	0°C
Sensor G8	0°C
Outdoor	0°C
Indoor	0°C
Calibrate probe	0,0%

Function test

Chimney fan	Off	Test chimney fan
Sec. damper	Off	Test secondary air damper
Prim. damper	Off	Test primary air damper
Shunt motor (+/-)	Off	Test shunt motor
Rad.pump	Off	Test radiator pump
Loading pump	Off	Test loading pump

Alarms

High fluegas temp	0	Alarm for high flue gas temp
Low fluegas temp	0	Alarm for low flue gas temp
Ignition	0	Alarm for missed ignition

! The energy saver is controlled by different sensors depending on which you have selected to control your heating system. Check the table below before setting lowering temp.

Sensor	Temperature
Room	Room temp.
Outdoor	Flow temp.
Both	Flow temp.
Constant	Flow temp.

Wiring Table:

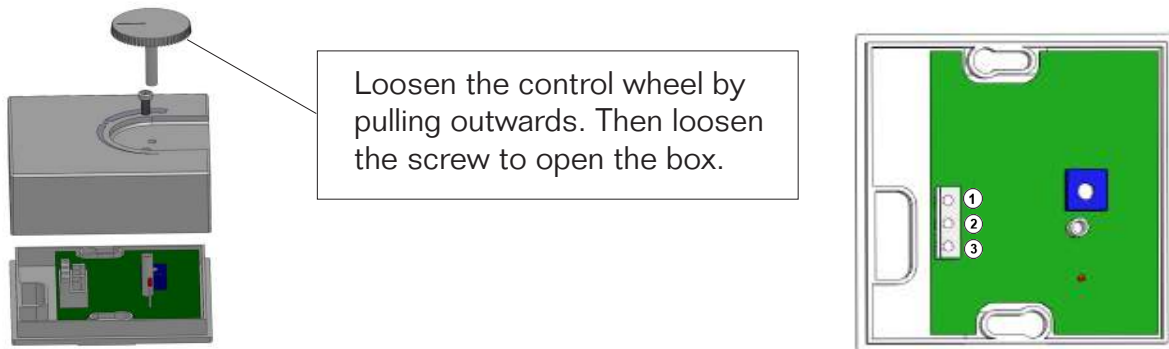
Terminal	Wiring
1	PE
2	PE
3	PE
4	PE
5	PE
6	PE
7	PE
8	PE
9	PE
10	PE
11	PE
12	PE
13	PE
14	PE
15	PE
16	PE
17	PE
21	PE
22	PE
23	PE
24	PE
51	PE
52	PE
53	PE
54	PE
55	PE
56	PE
57	PE
58	PE
61	PE
62	PE
63	PE
64	PE

■ Shunt control

In the menu "shunt control" there are different options of controls; indoor sensor, outdoor sensor or both in combination.

Room sensor

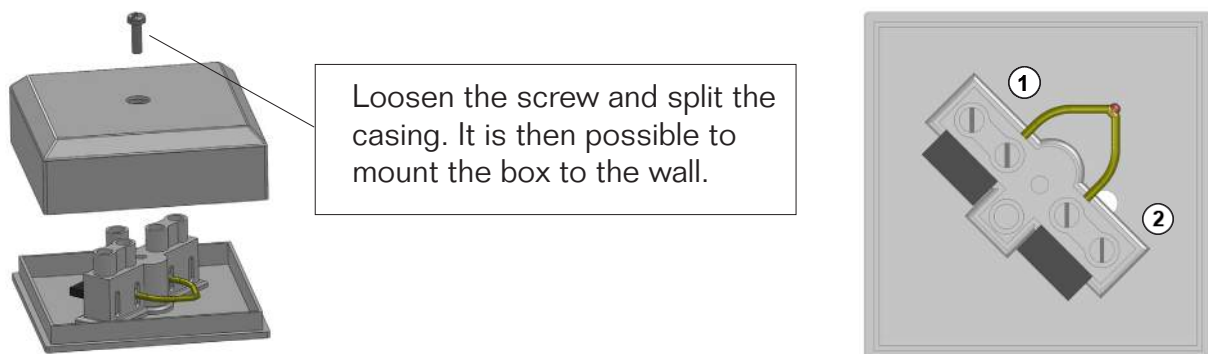
If the room sensor is used it is recommended to be installed in a open space near the center of the house. The sensor shouldn't be influenced by draught, doors, sunlight directly to it or other heat sources since it then will affect the heating output to the entire house.



1	Connected to number 3 on the motherboard
2	Connected to number 4 on the motherboard
3	Connected to number 5 on the motherboard

Outdoor sensor

If an outdoor sensor is used this should be mounted on the facade of the house. It is important the sensor is mounted on the north side of the house. Make sure that the sensor isn't disturbed from solar gain. It is recommended that the sensor is mounted about 2 metres from ground level and if possible protected from water and such.



1	Connected to 1 on the motherboard
2	Connected to 2 on the motherboard

■ Adjustments of heating curves

The appropriate heating curve is essential in order to have the right indoor temperature. The heating curve needs to be adjusted to the specific energy demands of the house it is installed in. All houses have different demands, which could mean that one house would need a 25°C flow at an outdoor temperature of +0°C while another house needs 45°C.

Adjustment to the heating curve is done in the "Shunt control" menu. In this menu it is possible to alter both the slope and the adjustment to the curve. To find and adjust the correct heating curve it is important that the following points are fulfilled:

- *The outdoor temperature must not be higher than +5°C*
- *Energy saver function must be switched off.*
- *Valves on the radiators must be fully open.*
- *Radiators must be checked and in function.*

It is normal that during the first heating season changes must be done several times in order to find the right setting for the house. When the right setting is found there is no need for any changes for years to come. This is the value of an outdoor sensor. To start out with something as a rule of thumb we could recommend these initial settings:

- *Houses with underfloor heating in concrete. "Slope 35"*
- *Well insulated low energy house with low temp. radiators. "Slope 45"*
- *A high temp. radiator system in a older house with poor insulation. "slope 65-70"*

Example of slope:

If the slope is set to 50°C this is the temperature sent to the flow at an outdoor temperature of -15°C.

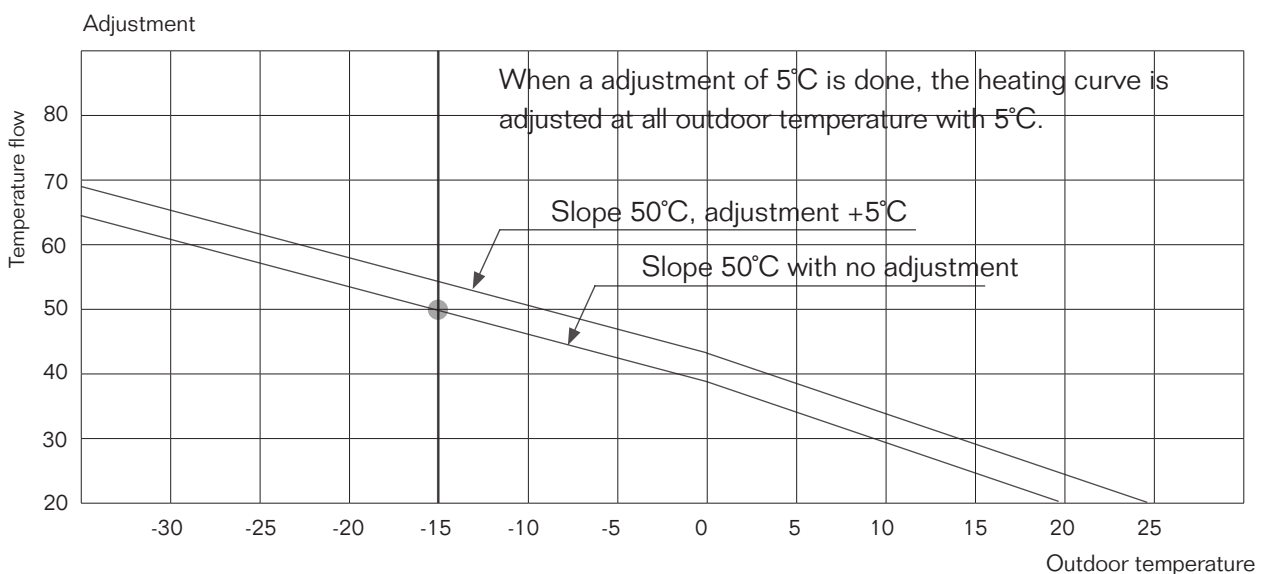
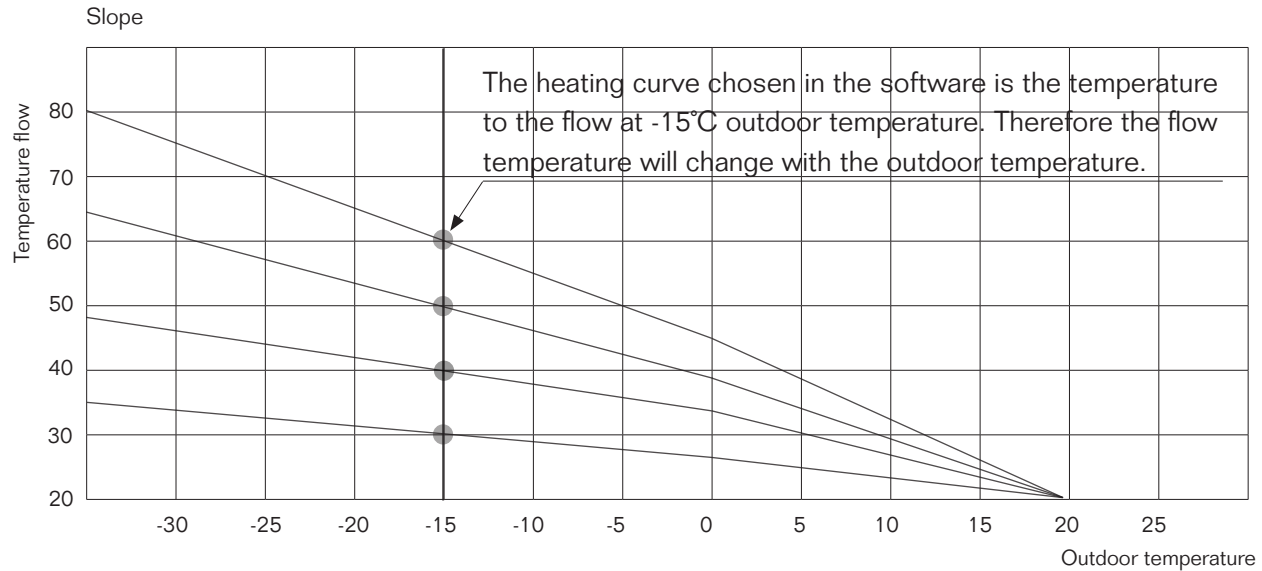
Example of adjustment:

When an adjustment is done to the slope this is done parallel to the curve. Meaning that if an adjustment of 5°C is done. This happens for the whole slope.

Example of curves



A too low heating curve will result in that the house will not have the correct indoor temperature



! If it is cold outdoors (cold winter) and the room temperature is too low. Increase the slope with 1-2°C

! If it is cold outdoors (cold winter) and the room temperature is too high. Decrease the slope with 1-2°C

! If it is warm outdoors (average autumn/spring) and the indoor temperature is too low. Increase the adjustment with 1-2°C

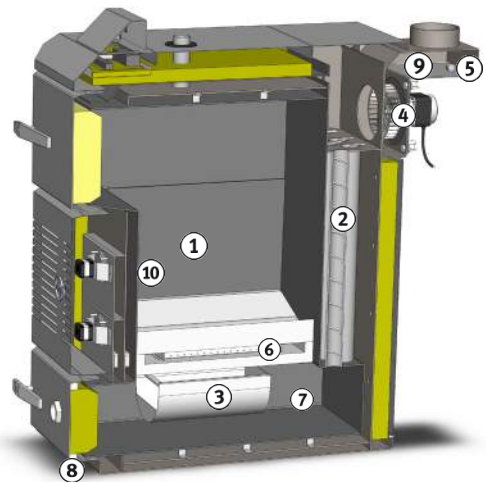
! If it is warm outdoors (average autumn/spring) and the indoor temperature is too high. Decrease the adjustment with 1-2°C

! Wait at least 24 hours between adjustments and changes due to slow response of heating.

■ Cleaning and service

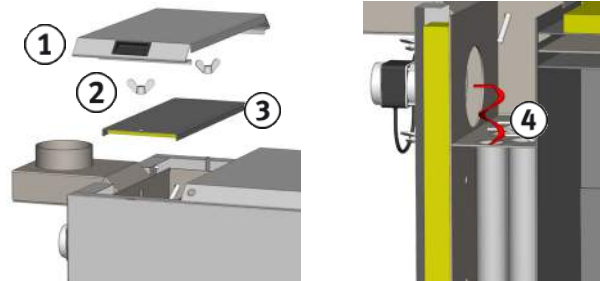
Cleaning interval

1. Loading compartment 40 hours firing.
2. Tubes 40 hours firing.
3. After burner chamber 15 hours firing.
4. Fan about 3 times a year.
5. Cleaning lambda sensor once per year.
6. Air distributor secondary air 40 hours firing.
7. Combustion chamber.
8. Check the gaskets once per year.
9. Flue connection elbow.
10. The holes where the primary air is released once per year.



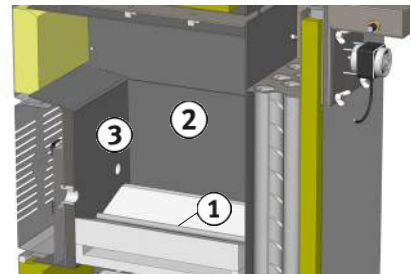
Tubes

In order to clean the tubes, lift the rear top plate (1.), then loosen the wing nuts (2.), that keep the soot door in place (3.). Remove the 7 spirals from the tubes (4.), and use the supplied brush to clean the tubes.



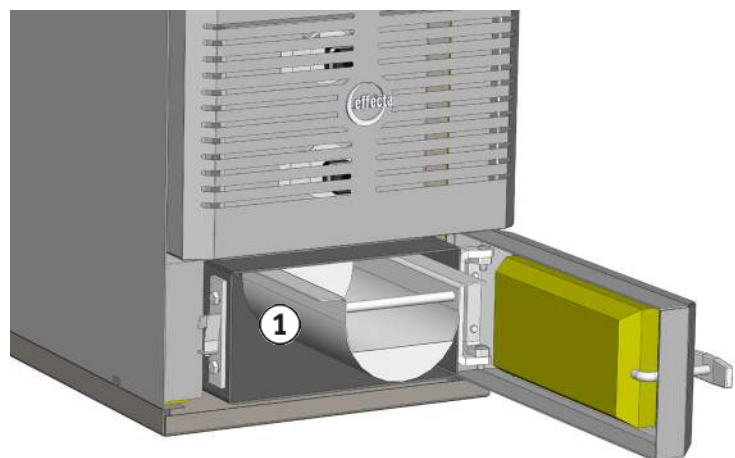
Loading compartment

Start by removing the pin (1.) located at the bottom of the ceramics. Scrape off the coals and ash down into the slits in the ceramics. The loading compartment walls (2.) normally have a thin layer of tar, this is normal and does not need to be scraped off. Do not forget to check that there are no ashes in the hole where the primary air (3.) is released into the loading compartment.



Afterburner chamber and combustion chamber

The afterburner chamber (1.) is located behind the lower door. It is important to keep it clean for maximum power and performance. The chamber slides on two rails under the ceramics tray. Pull out and empty the chamber from soot and ashes approximately every third firing. When you do a major cleaning, scrape the space under the ceramics clean as well as the whole space where the afterburner chamber is located. Do not forget to reach all the way into the back where the ashes from the tubes collect.

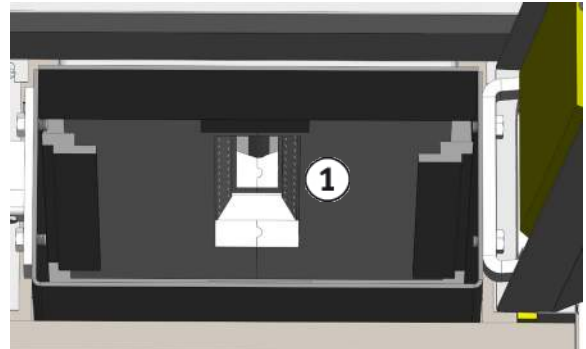


■ Cleaning

Secondary air

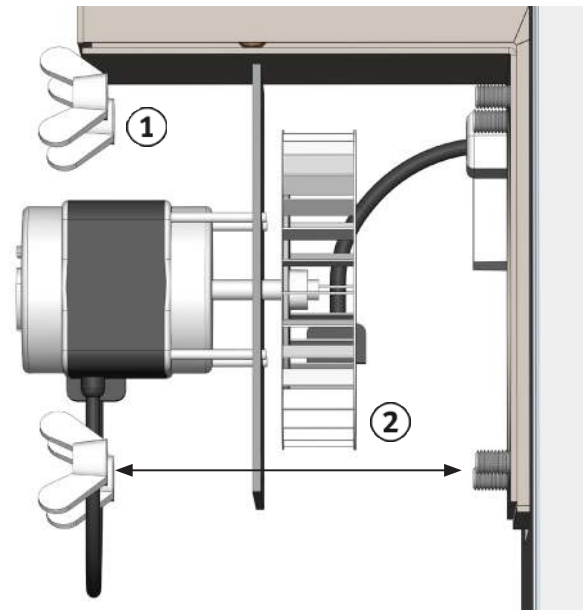
In the columns where the flame is drawn down, there is a metal plate with holes (1.) Clean the plate after about 40 hours firing. Brush / scrape away the dust and ashes. If the holes become clogged up, combustion will deteriorate significantly.

(In the picture the lower door is viewed from an angle from below)



Fan

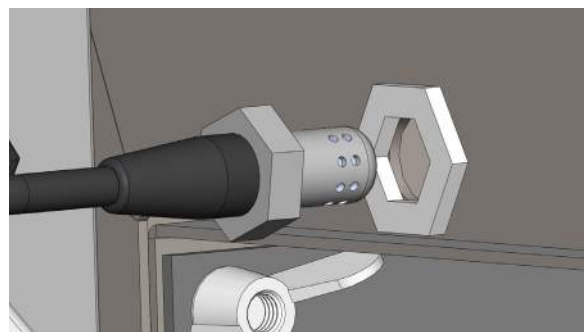
In normal wood consumption, you should clean the fan three times a year. Loosen the wing nuts (1.) located at the back of the fan housing. Pull out the fan, clean the fan wings (2.) from dust and soot. If the fan is not cleaned, the boiler will lose power, resulting in slower heating and lower combustion.



Lambda sensor

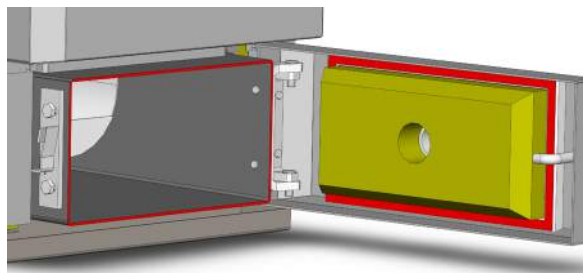
The lambda sensor is located in the flue connection and measures the oxygen content in the flue gas. Once a year the Lambda probe should be unscrewed from its bracket and cleaned from any soot that has amassed. Use a brush.

NOTE: Do not tap the sensor against a hard surface, it will brake!



Gaskets

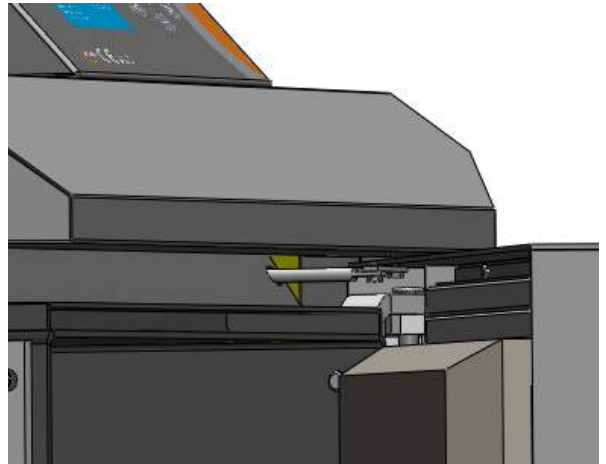
The door gaskets must fit tightly against the frame, if the doors leak then the boiler heats less efficiently. Make sure that the doors' gaskets seal tightly against the frames. If the gaskets do not seal tightly, the boiler will burn less efficiently. If the doors need to be adjusted, see (p. 21).



■ Door cleaning function

As an extra option, you can equip the Lambda 25, 35 or 60 with a door cleaning mechanism. This option can only be done in delivery from factory.

The function activates a movement of the turbulators in the convective part of the boiler each time the door is opened. Door cleaning prolongs the cleaning interval considerably. The function prevents soot from building up on the convective surfaces giving the boiler a higher efficiency.



■ Door adjustment

There are a number of ways to adjust the hatch. In the pictures below you can see the hinge on the door. After some use, some adjustments maybe is needed so the gaskets do not draw extra air to the boiler.

1. Adjustments in depth

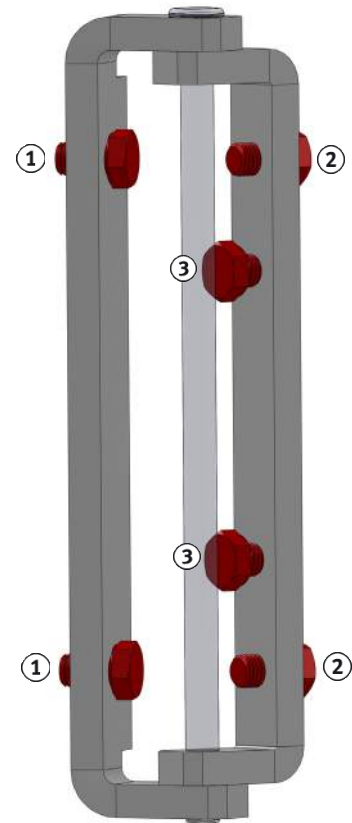
If the gasket does not seal tightly against the hinge side, loosen the two bolts that hold the hinge in place of the door frame. Release the bolts around two turns and adjust the door inwards to tighten the lid and inverted to release the pressure on the gasket.

2. Vertical displacement

To centre the gasket on the door frame in height, loosen the two bolts on the outside of door. Release the bolts around two turns and adjust the door.

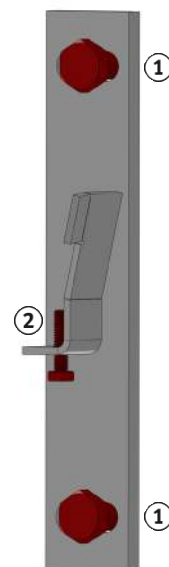
3. Adjustment sideways

To centre the gasket on the door frame to the side, loosen the two above the number of millimetres that the adjustment needs. Tighten the short side door with two bolts.



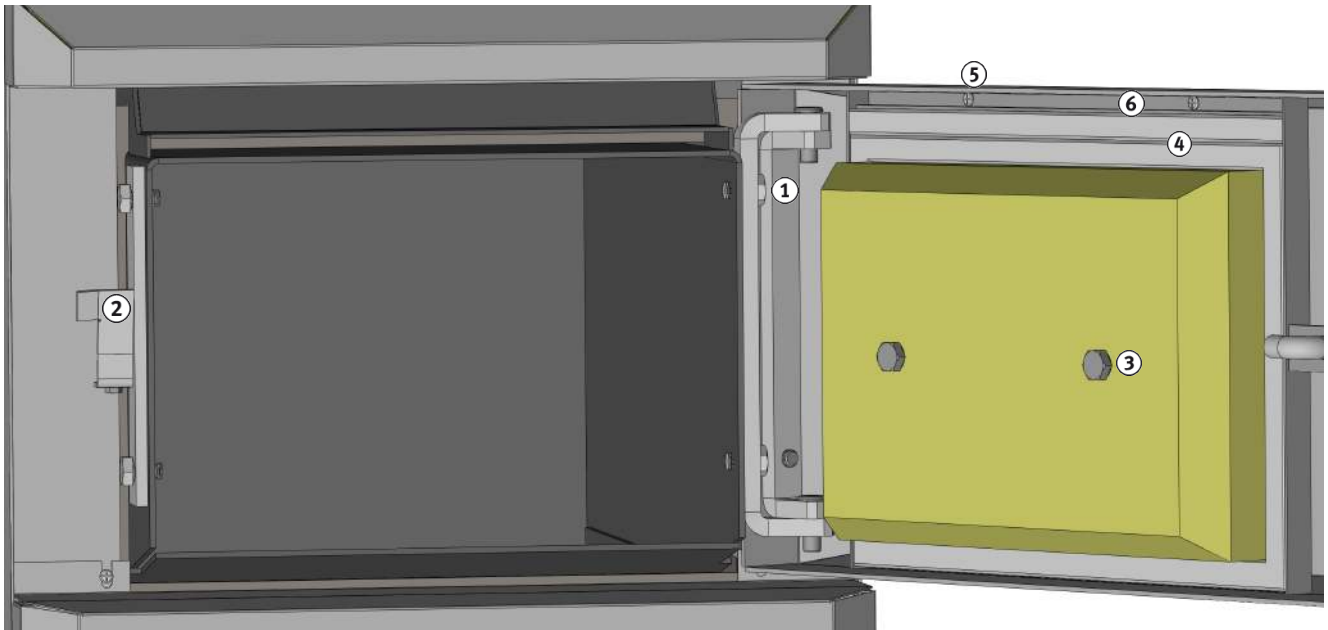
Approval of the door locking

If the gasket does not seal tightly on the handle side, loosen the two bolts (1.) that hold the bracket in place. Loosen around two turns and slide the latch inwards to tighten the lid and outward to release the pressure. If the door handle is not in the vertical position with the flip closed, you can adjust the bolt (2.) up or down to change position.



■ Rotate the door

As standard Effecta Lambda is delivered with door hinges on the right side. If you need to replace the door hanging follow instructions below.



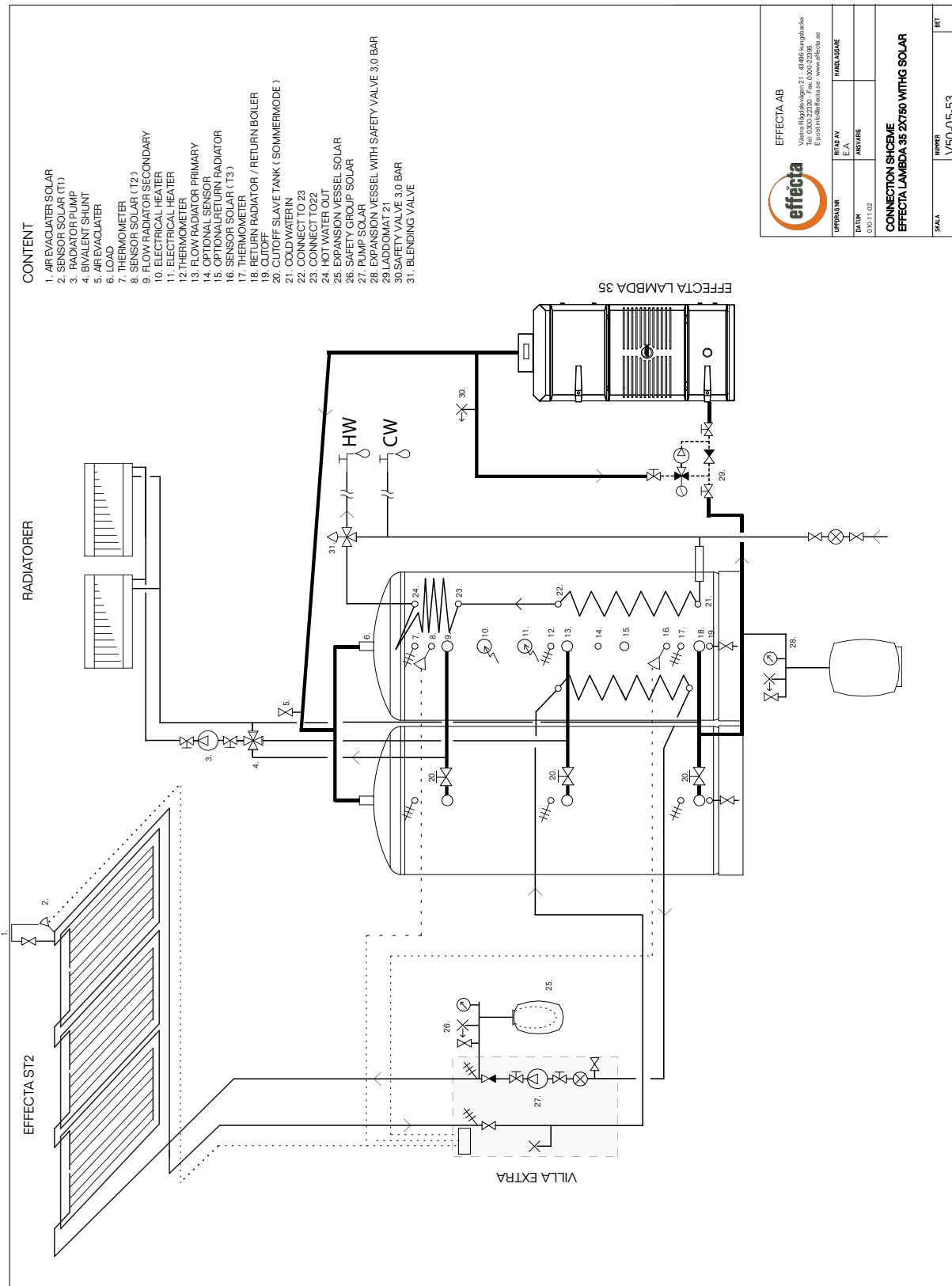
Upper hatch

1. Start by loosening the two M12 bolts that hold the hatch in the against the frame. Remember to have a shelter over the hatch to avoid scratches in the paint with continued work.
2. Also loosen the two M12 bolts that hold the locking device in place. The new lock is supplied with boiler, the existing is not to be used.
3. Remove the two M12 bolts that hold the thermal insulation in place. Manage the insulation carefully as it easily gets splinters.
4. Remove the two door gaskets.
5. Then remove the two small bolts that hold the angle (6) which is the upper insulation strip in place.
6. Reassemble the thermal insulation into the two holes located above the original holes. Replace gaskets and then finally the angle plate. Remember not to twist gasket when refitting.

Lower hatch

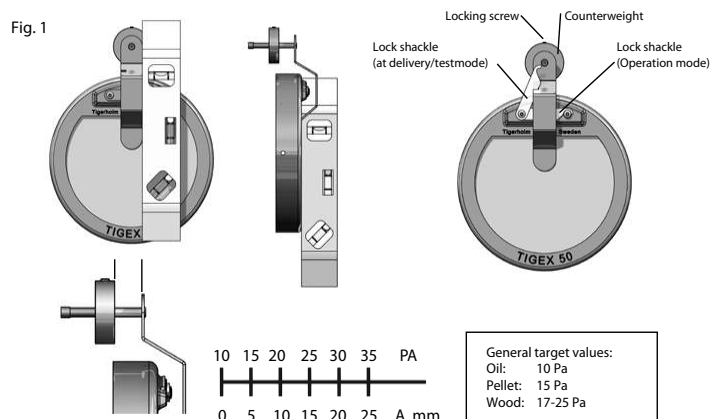
The lower door is rotated by following step (1-2).

Connection of pipes



■ Draft reducer (Optional)

A draft stabiliser for chimneys is designed to ensure proper draught and to reduce the risk of condensation. Tigex 50 has a design that makes it tight against flue gas leakage at excess pressure, which usually occurs in connection with the boiler start up phase. Fit the Tigex 50 with the door axis in a horizontal position, and the housing in the vertical position (Fig. 1). Make sure the door can move freely to the fully open position and the door does not jam. The door must not touch the flue connection flow, i.e. the door must not open into the chimney. Adjustment of the low pressure (Fig. 2) when the door opens is done by loosening the lock screw in the counterweight.



Move the counterweight to the desired distance with the corresponding Pa according to the table. Tighten the lock screw in the counterweight and check the distance again. These are approximate values and should be checked with a draught / low pressure gauge if a precise tuning of the low pressure is required. On delivery, the door is set to approx. 15 Pa.

■ Pellets burning



When firing with wood pellets the effect on the pellet burner is not allowed to exceed half the effect of the boiler output on wood logs.

Model	Effect pellets max
Lambda 25	12,5 kW
Lambda 35	17 kW
Lambda 60	28 kW

Sensors

The sensors to control stop and start of the burner needs to be placed in sensor pockets in the accumulator tank. Sensor G5 is placed at the bottom part of the tank to stop the burner. Sensor G6 is placed in the top part of the tank to start the burner. More information about the burners start and stop function can be found in the manual for the pellet burner.

Menus

In the Lambda 25/35/60 there is a menu option for activating pellet mode. Before the burner is started this option must be set to YES. In the manual for the burner you will find all the relevant information for setting start and stop temperatures of the burner.

Switching to pellet burning

When you switch from wood to pellets, clean the loading compartment from ash so that the column in the ceramics is open. If it is clogged up, the burner will stop at the feeder tubes thermal protection, and there is also a risk of smoke emission in the boiler room. Check also that the flue gases are not too low. Since the pellet burner emits a lower output compared to the wood boiler, flue gas levels will be lower. Beware of condensation in the chimney. If flue gas levels are so low that condensation is formed, you can remove one or more turbulators in order to increase the flue gas temperature.

■ Mounting the pellet burner

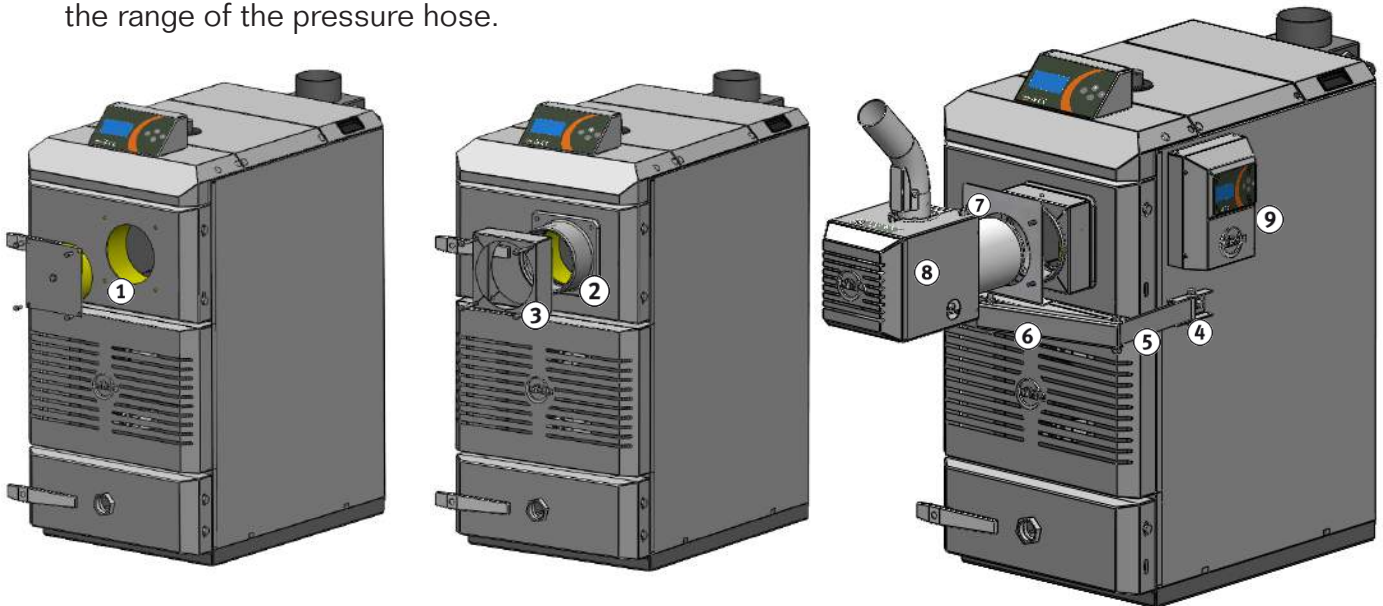


Below assembly guidance is only for the Effecta Supra burner. We cannot recommend use of any other burner in the boiler.

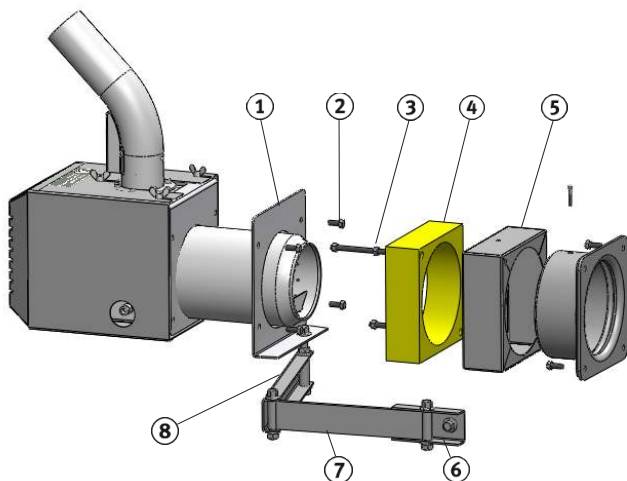


The mounting arm cannot be mounted on a existing boiler it can only be mounted from factory. Contact Effecta for alternative solutions.

1. Remove the cover plate on the top door. Use a sharp knife around the cover plate to avoid paint damages when removing the cover plate.
2. Mount the burner flange with the heat proof sealing. Use the bolts that held the cover plate.
3. To cover the flange the insulated heat shield should be mounted.
4. Mount the bracket for the mounting arm on prefferable side of the boiler.
5. Mount the rigid arm to the bracket.
6. Mount the second arm (u-profile) that will be connected to the burner.
7. The burners adapter plate should be mounted on to the arm.
8. Use the predrilled holes to mount the Supra burner on to the adaptor plate.
9. Mount the control unit where preffered. If equipped with AERO make sure that it will be within the range of the pressure hose.



■ Components for swiveling mounting arm

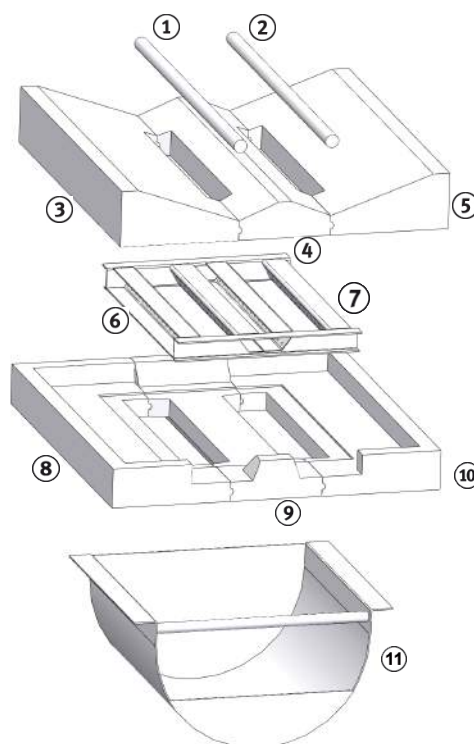


1	Adapter plate, pellet burner
2	Mounting bolts for bruner M8
3	Mounting bolts heat shield M8
4	Insulation for heat shield
5	Cover for heat shield
6	Bracket for mounting arm
7	Swiveling arm from boiler
8	Swiveling arm for pellet burner

■ Ceramics kit

- ! When firing only with oak the life length will be shortened. Never fire any objects containing sulfur (for instance Tetra pak) since that will damage the cermaics.
- ! Design of ceramics varies between 25kW, 35kW and the 60kW boilers. The illustration below is for the 35kW boiler.

The ceramics tray is installed in the loading compartment. The purpose of the ceramics is to separate the different combustion zones in the loading compartment. It is important to monitor the tray since it is a wear part. In normal conditions, the ceramics tray will last for 6-10 years. When the tray is used up, combustion and efficiency deteriorate significantly.

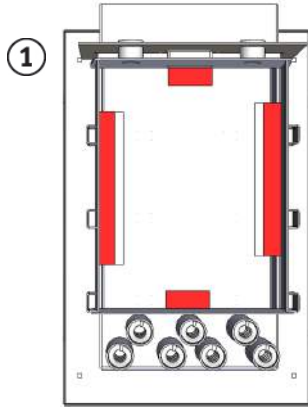


Example of the ceramics to the 60kW

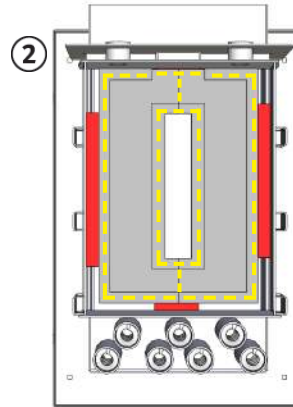
	Benämning	Lambda 25	Lambda 35	Lambda 60
1.	Grate stick	x	x	x
2.	Grate stick			x
3.	Top left	x	x	x
4.	Spacer			x
5.	Top right	x	x	x
6.	Distribution plate secondary air	x	x	x
7.	Distribution plate secondary air			x
8.	Bottom left	x	x	x
9.	Spacer			x
10.	Bottom right	x	x	x
11.	Afterburner	x	x	x

■ Ceramics replacement

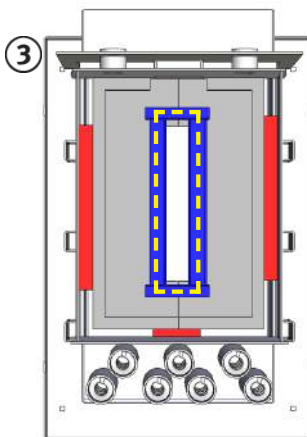
Eventually it is time to replace the ceramics tray. In the pictures below you can see a cross-section of Effecta Lambda seen from above. Follow the instructions below for easy replacement. Installation is done via the loading compartment door.



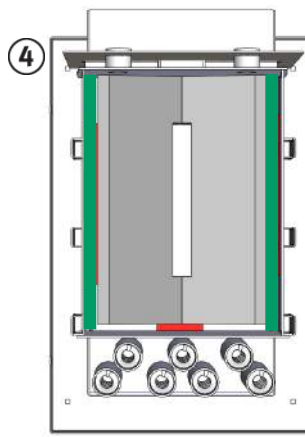
Start by breaking the old tray. Use a hammer if the blocks are not easily removed. Remember to use hearing protection. Clean the loading compartment from soot and ash once the tray has been removed.



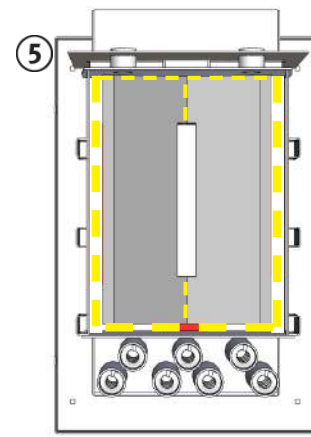
The new tray will rest on top of the joggle that are in the loading compartment. They are marked in red in the pictures. Centre the lower blocks no. 4 and no. 5 laterally and fixate them as far forward as possible in the loading compartment. Place a high string, about 2 cm, of the supplied ceramic mass along the areas that are marked in yellow. Remember not to seal the hole in the front where the secondary air is admitted.



Place the distribution plate in the recessed section of the bottom blocks. Place also a string of ceramic mass on top of the plate.



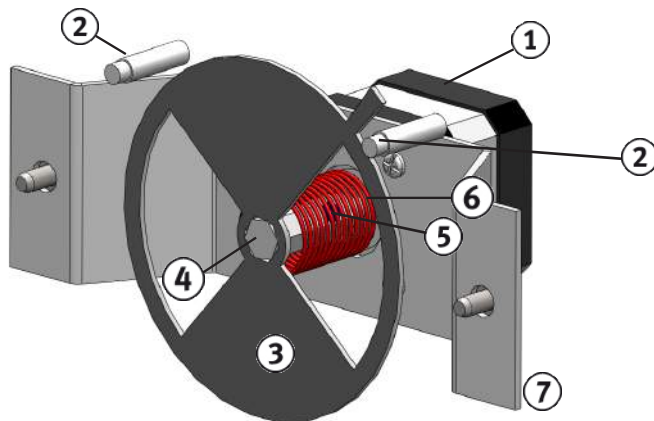
Now insert the upper blocks. Fold the supplied white cloth in half lengthwise and press down along the recess along the long sides. (Marked green)



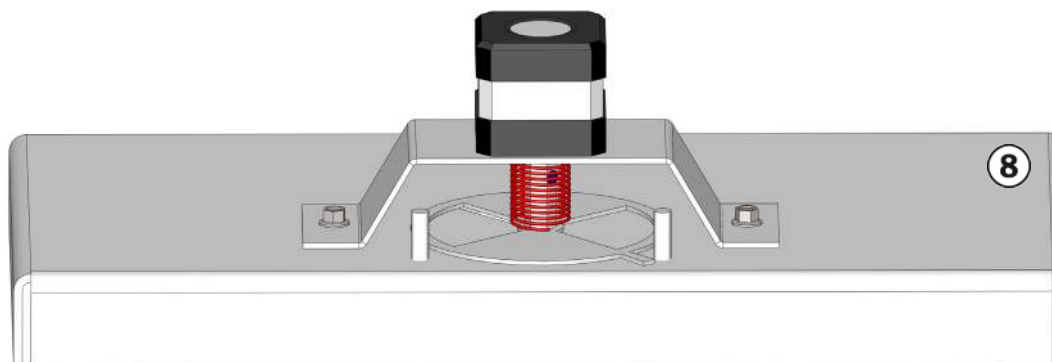
Now place ceramic mass along the area marked with yellow and the ceramics replacement is complete. Wait about 24 hours before firing.

■ Air damper components

To access the damper loosen the four screws holding the cover plate in front damper motors in place. Open the two doors to access the screws.



1	Damper motor	5	Set screw
2	Stop pin	6	Motor shaft
3	Air damper	7	Bracket motor
4	Distance	8	Air box



■ Troubleshooting

Problem	Possible errors	Action
There is smoke emission during ignition.	The fan is turned off.	Press (start new firing).
Smoke is seeping through the doors.	A gasket is leaking.	Adjust the doors.
The fan will not start.	An electronics malfunction. Thermal protection switched on.	Contact the factory.
The fan will not stop.	The boiler has not had a flue gas temperature higher than 100°C during firing.	The boiler will stop within 1 hour.
Tar in the convection section.	A sooty loading compartment. The Lambda sensor needs cleaning. Damper motor defective.	Clean the boiler. Clean the Lambda sensor. Contact the factory.
Little or no heat is transferred to the accumulator tank.	Probably air in the system. Poor quality wood.	Fill the system thoroughly. Change to dryer wood, or chop the wood into smaller pieces.
The boiler has a low output and is sluggish.	Moist wood or too little draught in the chimney. The boiler may need to be cleaned.	Try drier wood. Clean the boiler and fan.
The charge pump creaks or thumps, and sometimes stops pumping.	Probably air in the system. Low system pressure.	Follow the Laddomat instructions. Increase the pressure.
The pressure drops in the system.	There is a leak in the system. The water in the vessel has evaporated. Wrong first pressure in the pressure vessel.	Fill up with water and ventilate. Adjust the pressure.
The CO ² level is abnormally high.	The lift dampers have shifted.	Adjust the dampers.
The CO ² level is abnormally low.	The lift dampers have shifted, the fire is extinguished.	Adjust the dampers, check the fire.
The air dampers do not start regulating.	Flue gas temperature is below 100°C, and the fire is extinguished. Deficient flue gas sensor.	Check the fire.
Noise from the fan.	The cooling wing scrapes against the boiler. The bearings in the fan have run out.	Check the cooling wing on the shaft between the motor and fan. Contact your installer.
The display is blinking.	Low or high voltage to the circuit board.	Adjust the converter.
High flue gas temperature.	Soot in the tubes.	Clean the boiler.



Försäkran om överensstämmelse Declaration of conformity
Konformitätserklärung Déclaration de conformité

Försäkrar under eget ansvar att produkten,
Declare under our sole responsibility that the product,
Erklären in alleiniger Verantwort, daß das Produkt,
Déclare sous sa seule responsabilité que les modèles,

Effecta Lambda Wood gasification boiler

som omfattas av denna försäkran är i överensstämmelse med följande direktiv
to which this declaration relates is in conformity with requirements of the following directives
auf das sich diese Erklärung bezieht, konform ist mit den Anforderung der Richtlinien
auxquels la présente déclaration s'applique, sont conformes aux exigences des directives suivantes

EC directive on:

* Electromagnetic Compatibility (EMC): 2004/108/EC

* Low Voltage Directive (LVD): 2006/95/EC

* Pressure Equipment Directive (PED): 97/23/EC

This pressurized equipments are not covered by Article 3 in EU Directive 97/23/ EC.

However, as prescribed

in item 3 of this article, the equipments are designed and manufactured in accordance with the sound engineering practice of a member state in order to ensure safe use.

Överensstämmelsen är kontrollerad i enlighet med följand EN-standarder
The conformity was checked in accordance with the following EN-standards
Die Konformität wurde überprüft anhand der EN-Normen
Cette conformité été vérifiée selon les normes suivantes

* EN 287-1:2004

* EN 303-5

* EN 10 204:2005

* EN 50 366:2003, A1:2006

* EN 55 014-1:2006

* EN 55 014-2:1997, A1:2001

* EN 60 335-1:2002, A1:2004,
A2:2006, A11:2004, A12:2006, A13:2008

* EN 60 335-2-21:2003, A1:2005,

A2:2008 ...

* EN 60 335-2-102:2006

* EN 61 000-3-2:2006

* EN 61 000-3-3:1995, A1:2001, A2:2005

* SPCR 028

Approval testing of welders - fusion welding...

Heating boilers for solid fuels

Metallic products - type of inspection documents...

EMF

Emission

Immunity

Safety of household...

Safety of household...

for storage water heaters

For gas, oil and solid-fuel burning appliances having

electrical connections

Harmonics (equipment with rated current $\leq 16A$ /phase)

Voltage fluctuations (equipment with rated current $\leq 16A$ /phase)

Kungsbacka 2011-01-20



Erik Andersson
CEO
Effecta Energy Solutions AB



Type plate

  	
Effecta Energy Solutions AB	
Tillverkare / Manufacturer Hersteller / Fabricator	Effecta Energy Solutions AB
Modell / Model Typ / Model	Lambda
Godkänd av / Approved by Zugelassen nach / Approved in Mitglieds / Emission class Emissionsklasse / Classe d'émission	EN-303-5
Max drifttryck / Max pressure Max Betriebsdruck / Pressure maximum (bar)	5
Max drifttemp. / Max temp. (°C) Max Betriebstemp. / Temp. d'opération max	100
Effekt / Heat output Heftleistung / Puissance nominale (kW)	27 □ 36 □ 42 □
Elanslutning / Electrical supply Strom / Branchement électrique (VAC)	230V - 50Hz
Vattenflöde / Water volume Wasserinhalt / Contenance d'eau (litre)	70 □ 80 □ 130 □
Tillverknings nr / Manufacturing number Hersteller Nr / Numéro de fabrication	70 □ 80 □ 130 □
Tillverknings år / Manufacturing year	2011 □ 2012 □ 2013 □ 2014 □ 2015 □ 2016 □ 2017 □
Effecta AB - Sweden - Kungsbacka - www.effecta.se	

ITEM NO	PART NO 25kW	PART NO 35kW	PART NO 60kW	DESCRIPTION	QTY
1	90061	90049	90025	Casing front	1/1/1
2	90060R	90050R	9002R	Casing right side	1/1/1
3	90060L	90050L	9002L	Casing left side	1/1/1
4	90062	90052	90021	Casing top-front	1/1/1
5	90063	90053	90022	Casing top-mid	1/1/1
6	90064	90051	90023	Casing top-back	1/1/1
7	90047	90047	90047	Casing display box	1/1/1
8	90048	90048	90048	Display box back	1/1/1
9	90065	90046	90024	Casing backside	1/1/1
10	21132	21130	21131	Comp set ceramics	1/1/1
11	2777/25	2777	2777	Grate stick	1/1/2
12	21142	21140	21141	Afterburner	1/1/1
13	226	226	226	Turbulators	5/7/12
14	4211	4211	2545	Lock grate door	1/1/1
15	4212	4212	2546	Lock ash door	1/1/1
16	25361+62	25361+62	2533+34	Hinge grate door	1/1/1
17	25363+64	25363+64	2535+36	Hinge ash door	1/1/1
18	77	77	77	10mm seal rope	1m/1.5/2
19	76	76	76	20mm seal rope	1.5m/2/2.5
20	726	724	722	Grate door insulation	1/1/1
21	76	76	76	20mm seal rope	1m/1.5/2
22	727	725	723+7231	Ash door insulation	1/1/1
23	59	59	59	Inspection glass	1/1/1
24	4222	4208	4217	Soot hatch	1/1/1

Effecta Energy Solutions AB
Västra Ragdalsvägen 21
434 96 Kunsbacka
Sweden

Spareparts Lambda3

