



**Quick Guide**  
**User and Installation**

for

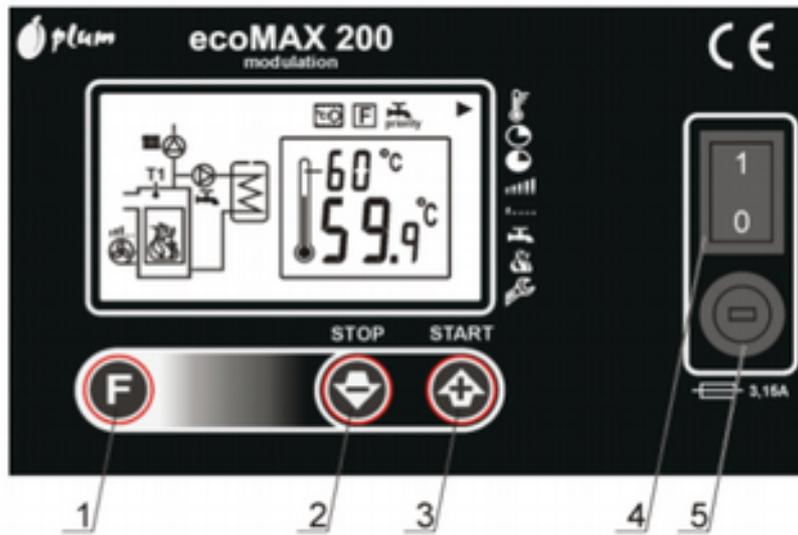
**VG20 - 100**

**L-Dragon 60**

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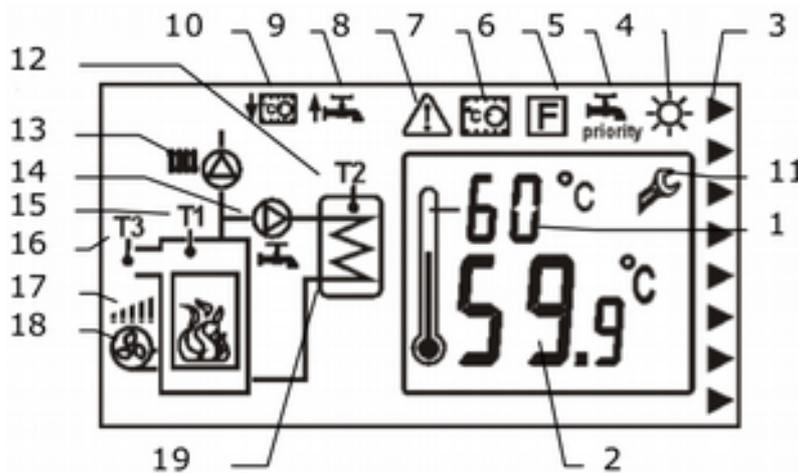
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## 1. Control panel



1. Menu button – this button is used to enter into and scroll through the menu.
2. Stop button – decrease the value.
3. Start button – increase the value.
4. Mains power switch – used to turn on and off the boilers main power supply.
5. Fuse holder – fuse socket for main power supply.

After turning the mains power switch on, the START and STOP buttons are used to control the exhaust fan.



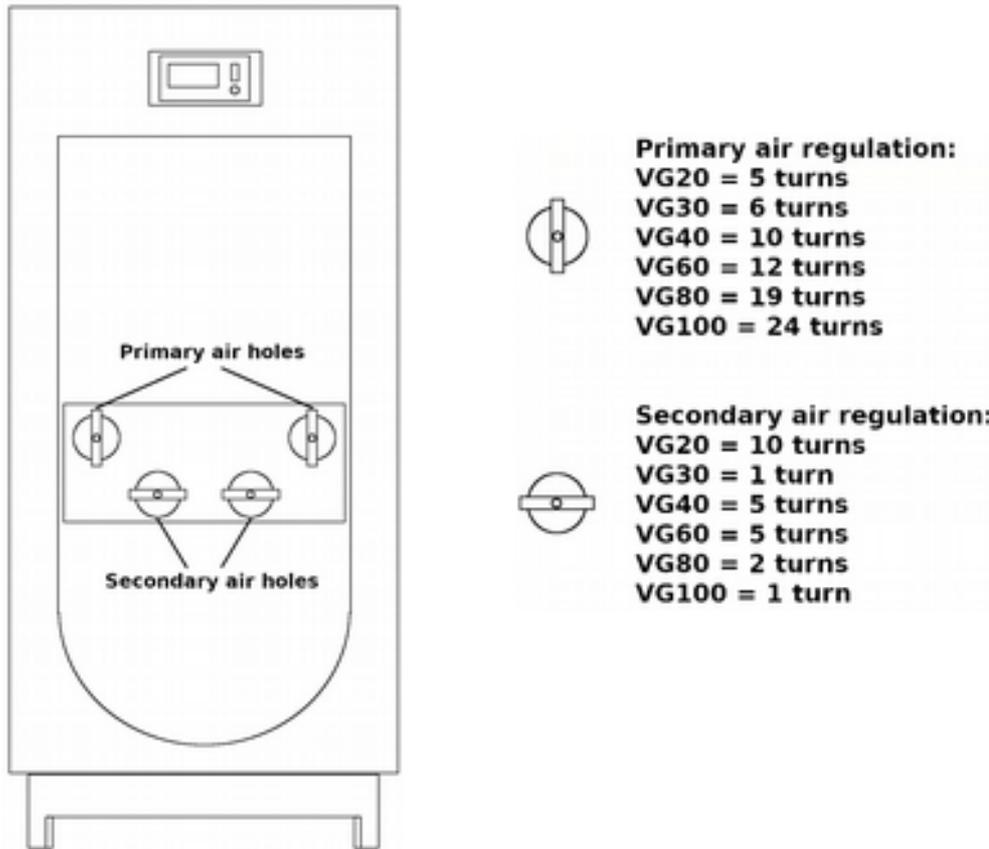
1. Preset boiler/emissions temperature.
2. Measured boiler/emissions temperature.
3. Signal arrows – see below.



## 2. Start up

- i. Preliminary checks before operating the boiler
  1. Check the system water level and pressure.
  2. Check the ventilation openings are free from obstacles.
  3. Check the valves and be sure that all the necessary water circulation valves are open.
  4. Check all the cleaning and servicing parts of the boiler and burner are securely closed and tight.
  5. Check the presence of any kind of flammable and explosive substance in boiler room.
  6. Check the supply power voltage and the polarity.
  7. Check the circulation pumps are rotating in the correct direction.
  8. Check the chimney and the flue gas connections are according to recommendations.

ii. Setting the primay and secondary air



**Primary:**

Use the primary air holes to adjust the size of the gasification flame.

**Tip:**

The flame should hit the vermiculite brick with the tips of the flame curling back on themselves.

<air = smaller flame

>air = larger flame

**Secondary:**

Use the secondary air holes to adjust the colour of the gasification flame.

**Tip:**

The flame should be a bright orange to yellow colour. If the flame is a dark orange to red colour then you need to increase the air.

### iii. Setting the parameters

Before you start the boiler, it should be programmed to suit the heating system.

Enter the service settings by holding the 'F' button on the main screen for 8 seconds. You will then see the below parameters.

Name	Parameter	Range	Unit	Default value
Pump activation temperature	n0	0 – 80	°C	40
Boiler hysteresis	n1	1 – 5	°C	2
Minimum exhaust fan speed	n2	10 – 99	%	14
Minimum boiler temperature	n3	40 – 55	°C	50
Maximum boiler temperature	n4	70 – 90	°C	85
Fuel shortage detection time	n5	2 – 250	min	20
Screen brightness	n6	0 – 100	%	80
Reduction in exhaust fan speed	n7	1 – 30	°C	5
Pump down time thermostat	n8	0 – 99	min	0
Fuel shortage detection method	n9	1, 2		1

Boiler preset temperature decrease by thermostat	r0	0,1 – 20	°C	0
Hot utility water temperature hysteresis	r1	1 – 20	°C	5
Boiler preset temperature increase by hot utility water	r2	0 – 20	°C	5
Maximum hot utility water temperature	r3	20 – 85	°C	65
Extended hot utility water pump operation	r4	0,1 – 30	min	0
Fuel shortage detection – emission temperature	r5	20 – 250	°C	90
Pump enable / disable for buffer tank	r6	0, 1		0
Emission temperature firing up mode 3	r7	10 – 40 (x10)	°C	30 (300)
Firing up time mode 3	r8	0 – 250	min	30
Restoring factory parameters	r9	1, 0		0

If the boiler is being used in conjunction with a buffer tank, adjust the following parameters to suit this particular set up.

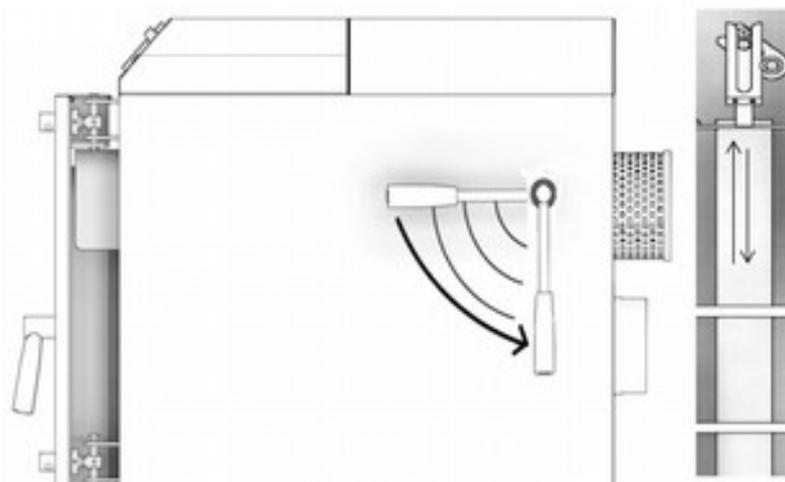
n0 = 55 Pump will come on at 55°C.

n9 = 2 Fuel shortage will be detected using emission temperature.

r6 = 1 Pump will disable when temperature in boiler starts to decrease.

iv. Start up

1. Press the mains power switch  on the control panel to position 1.
2. Light the fire.
3. Start to build a small flame in the bottom part of the chamber.
4. Press the start button  on the control panel.
5. Leave the upper door open on the latch until you have a strong flame.
6. Once you have a strong flame and fire bed, fill the chamber with wood as shown in the manual.
7. Close the door completely.
8. Press the menu button  until  the temperature symbol is shown.
9. Set the desired boiler water temperature with the  buttons.
10. Do not set the boiler temperature below 75°C to ensure there is no build up of condensation.
11. After every re-fueling, it is important to make sure the turbulators in the heat exchanger are cleaned down by using the handle by the side of boiler as illustrated below and in the manual.



v. Shut down

1. Never press the stop button  when the boiler is in the running mode and if there is fuel in the combustion chamber. Always wait until the fire has extinguished. If the stop button is pressed then this can cause smoke leakage into the boiler room.
2. The boiler controller is capable of detecting fuel shortage. If there is fuel shortage then the screen will display an alarm code 'AL1'.
3. When 'AL1' is displayed on the screen, the exhaust fan is disabled and the boiler will automatically revert to stop mode.

### 3. Maintenance and Servicing

i. Before carrying out cleaning

1. Make sure the fuel in the chamber is completely spent and the boiler temperature is less than 40°C.
2. Turn off the boiler from the control panel and disconnect the power supply.
3. Always wait until all parts are cooled down before any cleaning and servicing operations are carried out.

ii. Periodical cleaning and servicing

In order to extend the lifetime of the boiler and increase efficiency it is important to carry out periodic cleaning. Before the heating season begins or once a year contact your installer to service your boiler, paying attention to the following:

1. Clean the boiler heat exchanger surfaces, tubes and turbulators.
2. Check the combustion parameters.
3. Check the security and operational devices. (overheat valve, pressure relief valve)
4. Check the adequacy of the chimney draw.
5. Have the flue/chimney cleaned and checked by a qualified sweep.

iii. Regular cleaning and checks

1. Do not add any additional fuel and wait until the fuel is completely finished in the chamber and the boiler temperature is less than 40°C.
2. Stop the circulation pump.
3. Disconnect the mains power supply.
4. Dismantle the flue compartment at the rear of the boiler and clean.
5. Open the top fuel feeding door and clean all the surfaces.
6. Open the bottom door and clean the gasification chamber.
7. Clean all flue gas pathways between bottom chamber and rear flue outlet.
8. Water level or pressure must be checked regularly after commissioning as air is discharged from the system. Thereafter, at least once a month is adequate.
9. If the boiler door ceramic fire rope is worn or damaged it can cause gases to leak from the boiler. Check this periodically and replace as necessary.

The cleaning period depends on the fuel and combustion parameters. After the first commissioning please clean the boiler heat exchanger surfaces once a month. After a few months you can then decide on the period of cleaning that the boiler will need.