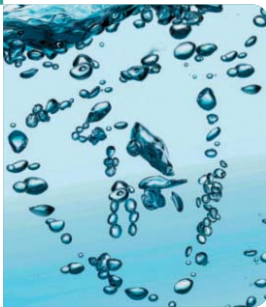




Lamborghini
CALORECLIMA

Eco-logik



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Cast iron solid fuel boiler



EN

1. GENERAL WARNINGS

- Carefully read and follow the instructions contained in this instruction booklet.
- After boiler installation, inform the user regarding its operation and give him this manual, which is an integral and essential part of the product and must be kept with care for future reference.
- Installation and maintenance must be carried out by professionally qualified personnel, in compliance with the current regulations and according to the manufacturer's instructions. Do not carry out any operation on the sealed control parts.
- Incorrect installation or inadequate maintenance can result in damage or injury. The Manufacturer declines any liability for damage due to errors in installation and use, or failure to follow the instructions.
- Before carrying out any cleaning or maintenance operation, disconnect the unit from the electrical power supply using the switch and/or the special cut-off devices.
- In case of a fault and/or poor operation, deactivate the unit and do not try to repair it or directly intervene. Contact professionally qualified personnel. Any repair/replacement of the products must only be carried out by qualified personnel using original replacement parts. Failure to comply with the above could affect the safety of the unit.
- This unit must only be used for its intended purpose. Any other use is deemed improper and therefore hazardous.
- The packing materials are potentially hazardous and must not be left within the reach of children.
- The unit must not be used by people (including children) with limited physical, sensory or mental abilities or without experience and knowledge of it, unless instructed or supervised in its use by someone responsible for their safety.
- The unit and its accessories must be appropriately disposed of, in compliance with the current regulations.
- The images given in this manual are a simplified representation of the product. In this representation there may be slight and insignificant differences with respect to the product supplied.

2. OPERATING INSTRUCTIONS

2.1 Introduction

The ECO - LOGIK is a new cast-iron boiler for heating, using solid fuels (wood and coke), or pellets (with optional kit). The boiler shell consists of elements assembled with nipples; the profile of the elements has been carefully designed with optimum division of the fins to ensure high thermal efficiency, high performance and considerable energy-saving. The combustion chamber is specially designed to take large pieces of wood; loading is through the large top door. The combustion chamber is completely wet; which ensures long life and high efficiency.

2.2 Control panel

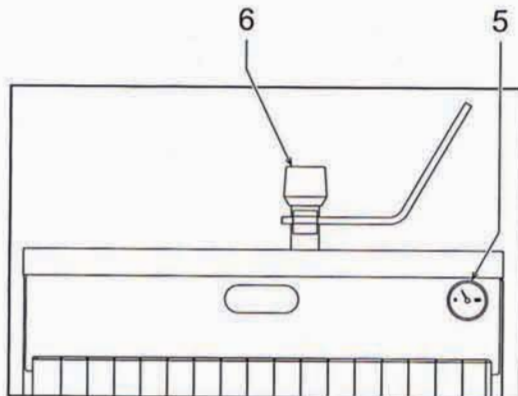


fig. 1 - Panel

- 5 Thermometer
- 6 Draught thermostatic regulator

2.3 Lighting and turning off

Fuel

The boiler must only burn coke or natural wood that has not been treated. It is also possible to use pressed and briquette fuels provided they are entirely of wood. A pellet burner can be fitted to the boiler with the optional conversion kit. Refer to the instructions supplied with the burner for the lighting, shutdown and maintenance operations.



The combustion of waste, plastic or liquids can produce poisonous burnt gases with the risk of poisoning, death or explosion.

- Use the recommended fuels only.
- Shut down the boiler in case of danger of explosion, fire, burnt gases or fumes.
- The boiler must only be used by adults who are familiar with its operation and the instructions.
- The user is only authorised to light the boiler, set the heating temperature, shut down the boiler and clean it.
- Keep unsupervised children away from the boiler when in use.
- Never burn any liquids or use them to increase boiler performance.
- Clean the surface of the boiler with non-flammable agents only.
- Never place any flammable objects on or near the boiler.
- Never place any flammable materials in the boiler room (e.g. wood, paper, petroleum, gas oil).

Wood is an extremely heterogeneous fuel due to its type, moisture content, shape and dimensions. Boiler thermal efficiency depends on the type of wood used, its moisture content, the method of loading and the size of the pieces. Excellent quality woods are oak, ash, beech, maple and fruit trees except cherry, good quality woods are chestnut and birch, while woods of sufficient quality are lime, poplar and willow. Resinous ones are generally mediocre fuels. The higher the wood moisture content, the lower the heating power. Using damp fuels causes a loss of efficiency. Use logs in their natural state that have been dried in the open air (stored for 2 years with maximum humidity 20%).

Boiler lighting (operation with wood or coke)

- Open the bottom door and remove any ash from the combustion chamber. Close the bottom door.
- Turn thermostatic regulator knob 6 to the required temperature value.
- Open the top door. Put some paper and small pieces of dry wood on the burner grate.
- Light the fuel and add some slightly larger pieces of wood.
- Close the door and wait for an initial bed of embers to form.
- Open the top door slowly.
- Spread the embers evenly over the burner plate using a poker.
- After the bed of embers has formed on the main plate, it is possible to start loading the firewood or coke in small and medium-sized pieces.



- Pieces that are too long will not fall properly, causing gaps in the wood box and forming areas of unburnt wood.
- Pieces that are too short cause uneven air flows, with a reduction in power and efficiency
- Always open the top door slowly to avoid puffs of smoke
- Never open the bottom door during operation.
- When loading, avoid keeping the top door open for long periods.
- In case of reduced performance, distilled gases can form at low temperature, which can cause smoke poisoning if inhaled.
- If dense smoke can be seen, do not breathe it.
- Make sure the room is well ventilated.
- Clean the boiler and the gas flueways as specified.

Boiler shutdown

To shut down the boiler, allow all the fuel to burn.

Shutdown for brief periods

For brief shutdown periods, once the fuel has been consumed and the boiler cooled:

- Clean the support surfaces of the loading door and loading compartment.
- Remove the ash and clean the combustion chamber.
- Close the ash door and loading door.

Shutdown for long periods

To put the boiler out of service for long periods (e.g. at the end of the cold season), carefully clean the boiler to prevent corrosion.



To avoid damage caused by freezing during long idle periods in winter, it is advisable to drain all water from the boiler, or add a suitable antifreeze to the heating system, in compliance with that prescribed in sec. 3.3.

2.4 Adjustments

Important

To prevent condensate from forming in the combustion chamber, it is advisable to turn the control knob to 60°C; it would be best to turn it to 80°C and adjust the heating water temperature with the mixer valve.

The only manual operations necessary are:

- Periodical cleaning of the firebox through the front grate, with removal of ash, opening the bottom door.
- Periodical loading of the firebox through the special top door.

System pressure adjustment

Periodically check that the system is full of water. These checks must be carried out cold, checking the expansion tanks (open types must have water at the initial level, whereas in closed types the pressure must be equal to or higher than the initial prefilling pressure).


3. INSTALLATION

3.1 General Instructions

BOILER INSTALLATION MUST ONLY BE PERFORMED BY QUALIFIED PERSONNEL, IN ACCORDANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE PROVISIONS OF CURRENT LAW, THE PRESCRIPTIONS OF NATIONAL AND LOCAL STANDARDS AND THE RULES OF PROPER WORKMANSHIP.

3.2 Place of installation

The boiler must be installed in a special room with ventilation openings to the outside in conformity with current regulations. If there are several burners or extraction units that can work together in the same room, the ventilation openings must be sized for simultaneous operation of all the units. The place of installation must be free of flammable objects or materials, corrosive gases, volatile substances or dusts that can be sucked by the fan. The place must be dry and not exposed to rain, snow or frost.

 Enough space must be provided around the unit for removing the casing and for normal maintenance operations. In particular, make sure there is enough space in the front part of the boiler for loading fuel.

For installation, proceed as follows:

1. Unpack the boiler.
2. Fit the thermostatic regulator "H" fig. 2.
3. Connect the boiler delivery and return to the heating system.
4. Adjust the air inlet door adjustment screw so that with the door touching there is in any case an air passage of approx. 1 - 2 mm (max.). With boiler cold, set the control thermostat to 60°C. Hook the chain "C" to the special air inlet door eyelet "D", adjusting its length so that the air passage "L" (fig. 2) is approx. 15 mm for "coke III" and 2 mm for "wood".

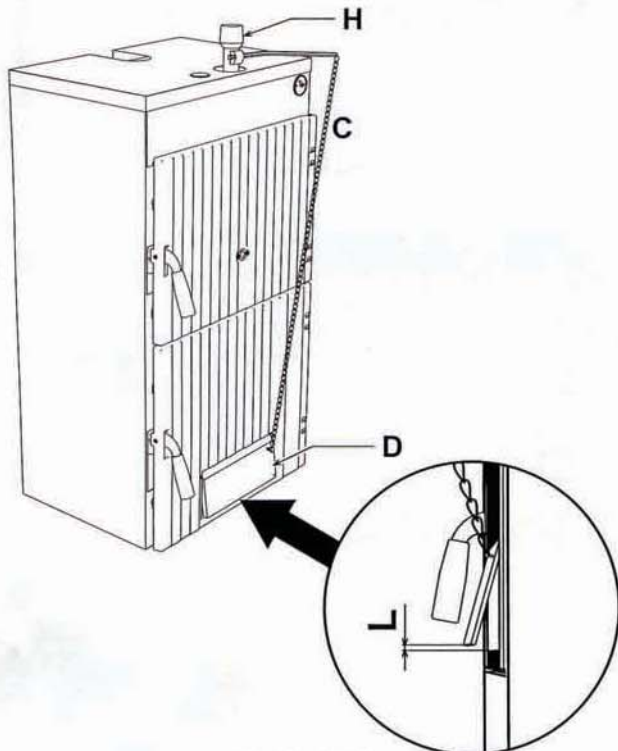


fig. 2 - Installation

3.3 Plumbing connections

The heating capacity of the unit must be previously established by calculating the building's heat requirement according to the current regulations. The system must be provided with all the components for correct and regular operation. In particular, provide for all the protection and safety devices required by the current regulations. They must be installed on the hot water circuit delivery piping, within a distance of not more than 0.5 metres, with no shutoff devices in between. The unit is not supplied with an expansion tank; its connection must therefore be carried out by the installer.

A safety valve suitable for use with this unit is available on request.



The safety valve outlet must be connected to a funnel or collection pipe to prevent water spurring onto the floor in case of overpressure in the heating circuit. Otherwise, if the discharge valve cuts in and floods the room, the boiler manufacturer cannot be held liable.

Do not use the water system pipes to earth electrical appliances.

Before installation, carefully clean all the system pipes to remove any residuals or impurities that could affect proper operation of the unit.

Carry out the relevant connections according to the diagram in cap. 5 and the symbols given on the unit.

System water characteristics

In the presence of water harder than 25° Fr (1°F = 10ppm CaCO₃), use suitably treated water in order to avoid possible scaling in the boiler. Treatment must not reduce the hardness to values below 15°F (Decree 236/88 for uses of water intended for human consumption). Treatment of the water used is indispensable in case of very large systems or with frequent introduction of replenishing water in the system.

Antifreeze system, antifreeze fluids, additives and inhibitors

If necessary, antifreeze fluids, additives and inhibitors can be used only if the manufacturer of these products guarantees that they are suitable for this use and do not cause damage to the boiler exchanger or other components and/or materials of the unit and system. Do not use antifreeze fluids, additives or inhibitors that are not specific for use in heating systems and not compatible with the boiler materials and system.

Safety coil connection

It is possible to receive an external (cooling circuit) safety heat exchanger (optional) together with the boiler.

In countries where Standard EN 303-5 is applied, the boiler must have the availability of a system allowing a safe outlet for excess of heat without additional energy. In this way the max. boiler water temperature will not exceed 100°C (overheating protection).

The minimum cooling water supply pressure must be 2.0 bar. A flow-rate of at least 10 l/min must be available.

- Remove the flange "A" located on the back of the boiler.
- Fit the coil "N", fixing it with the 4 bolts.
- Fit the safety valve "P" on the outlet of the coil "N", respecting the direction of the arrow. Insert the valve probe "Q" in the special sheathing "G". Connect the water inlet directly to the safety coil. Connect the outlet to the valve.

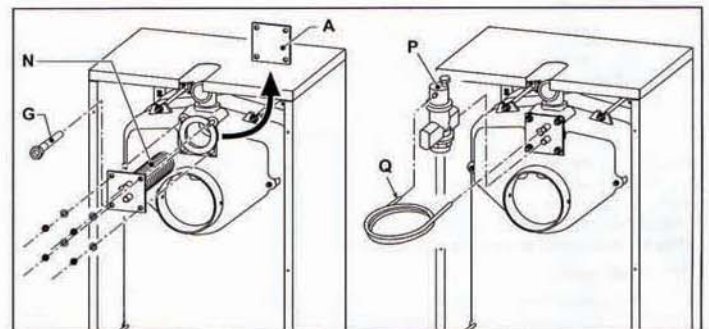


fig. 3 - Safety heat exchanger connection

3.4 Connection to the flue

The unit must be connected to a flue designed and built in compliance with current regulations. The pipe between the boiler and flue must be made from material suitable for the purpose, i.e. heat and corrosion resistant. Ensure the seal at the joints and insulate the entire pipe between boiler and flue, to prevent the formation of condensate.

4. SERVICE AND MAINTENANCE

All adjustment, commissioning and periodical inspection operations described below must only be carried out by Qualified Personnel (meeting the professional technical requirements prescribed by the current regulations).

LAMBORGHINI declines any liability for damage and/or injury caused by unqualified and unauthorised persons tampering with the unit.

4.1 Adjustments

Secondary air adjustment

The secondary air control device must be set during the commissioning stage.

Adjust the air inlet door adjustment screw so that in any case there remains an air passage of not more than 1 - 2 mm. With the boiler cold, set the thermostat to 60°. Hook the chain to the special air inlet door eyelet, adjusting its length so that the air passage "L" (fig. 2) is approx. 15 mm for "coke III" and 2 mm for "wood".

4.2 Startup



Checks to be made at first lighting, and after all maintenance operations that involved disconnecting from the systems or operations on safety devices or parts of the boiler.

Before lighting the boiler

- Open any on-off valves between the boiler and the systems.
- Check correct prefilling of the expansion tank
- Fill the water system and make sure that all air contained in the boiler and the system has been vented.
- Make sure there are no water leaks in the system, connections or boiler.
- Check correct connection of the electrical system and efficiency of the earthing system
- Make sure there are no flammable liquids or materials in the immediate vicinity of the boiler

Checks during operation

- Turn the unit on as described in sec. 2.3.
- Check the seal of the water systems.
- Check the efficiency of the flue and air-fume ducts while the boiler is working.
- Check that the water is circulating properly between the boiler and the systems.
- Check the seal of the wood loading and combustion chamber doors.
- Check combustion and correct setting of the secondary air control device.

4.3 Maintenance

Instructions



- Before carrying out any maintenance operation, disconnect the power to the boiler and wait until it is at room temperature.

- Never drain (even partially) the water from the system unless absolutely necessary.

- Do not clean the boiler and/or its parts with easily flammable substances (e.g. petrol, alcohol, etc.).

- Do not leave containers of flammable substances in the room where the boiler is installed.

- Do not clean the heating system when the boiler is operating.

- Use tube brushes and aspirators for cleaning; if rags are used, make sure they are not left inside the boiler.

- If the ash is still hot, wear protective gloves.

- Put the ashes in a non-flammable container provided with lid.

Regularly or the end of every period of operation, carefully clean the boiler, and also the flue if necessary. To clean the boiler, open both cast-iron doors, remove the coal grate then, with a flexible metal tube brush, carefully clean the combustion chamber and the various flueways. Then remove any soot deposited in the ashpan. Also make sure the fume exhaust pipes and flue are clean and perfectly tight.

Periodical check

To ensure correct operation of the unit over time, have qualified personnel carry out a yearly check, providing for the following:

- Check and if necessary clean the boiler and fume ducts as described in the previous section.
- Check the burner plates.
- Check the tightness of the loading and ash door; replace the seal if necessary.
- The control and safety devices must function correctly.
- The fume exhaust circuit must be perfectly efficient.
- The fume ducts must be free of obstructions and leaks
- The water pressure in the system when cold must be approx. 1 bar; otherwise, bring it to that value.
- The circulating pump must not be blocked.
- The expansion tank must be filled.
- A possible pellet burner (with optional kit) must be checked according to the instructions provided with the burner.

5. TECHNICAL DATA AND CHARACTERISTICS

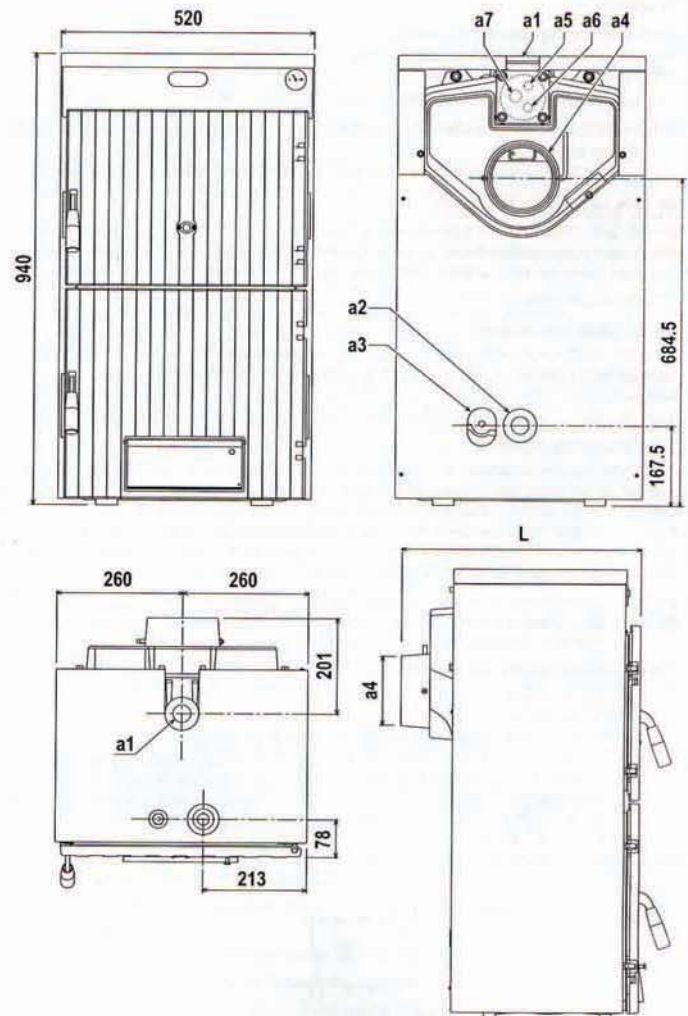


fig. 4 - Dimensions and connections

Model	L	a4 Ømm
ECO - LOGIK 3	510	150
ECO - LOGIK 4	620	
ECO - LOGIK 5	730	
ECO - LOGIK 6	840	180
ECO - LOGIK 7	950	

- a1 System delivery - Ø 1"1/2
- a2 System return - Ø 1"1/2
- a3 System drain - Ø 1/2"
- a4 Flue
- a5 - a6 Safety coil connections
- a7 Safety coil sheath connection

5.1 Technical data table

The column on the right gives the abbreviation used on the dataplate.

Data	Unit	ECO - LOGIK 3	ECO - LOGIK 4	ECO - LOGIK 5	ECO - LOGIK 6	ECO - LOGIK 7	
Heat output Wood	kW	19	27	36	43	50	(P)
Heat output Coke	kW	22.5	32.5	42.5	52.5	62.5	(P)
Heat output Pellets	kW	22	30	36	42	48	(P)
Efficiency Wood	%	77	78	78	78	78.5	
Efficiency Coke	%	79	79.5	80	80.5	81	
Efficiency Pellets	%	87.6	87.7	87.7	87.7	87.8	
Max. working pressure	bar.	4	4	4	4	4	
Water content	L.	26	30	34	38	42	
Chamber volume	dm ³	48	68	88	108	128	
Loading opening dimensions Wood/Coke	mm	384x210	384x210	384x210	384x210	384x210	
Temperature adjustment range Wood/Coke	°C	30-90	30-90	30-90	30-90	30-90	
Max. heating temperature Wood/Coke	°C	95	95	95	95	95	
Recommended temperature setting	°C	>60	>60	>60	>60	>60	
Boiler return min. temperature	°C	50	50	50	50	50	
Safety coil cooling water supply line requirements	Min. pressure - bar	2.0	2.0	2.0	2.0	2.0	
	Min. flow rate - l/min	10	10	10	10	10	
	Max. temperature - °C	25	25	25	25	25	
Duration of one wood load	h	≥ 2.5	≥ 2.5	≥ 2.5	≥ 2.5	≥ 2.5	
Duration of one coke load	h	≥ 4.5	≥ 4.5	≥ 4.5	≥ 4.5	≥ 4.5	
Min. flue draught Wood	Pa	12	14	16	18	20	
Min. flue draught Coke	Pa	8	10	15	20	25	
Min. flue draught Pellets	Pa	23	25	28	30	32	
Efficiency class EN303-5		3	3	3	3	3	
Empty weight	kg	193	241	289	337	385	

5.2 Diagrams

Pressure loss

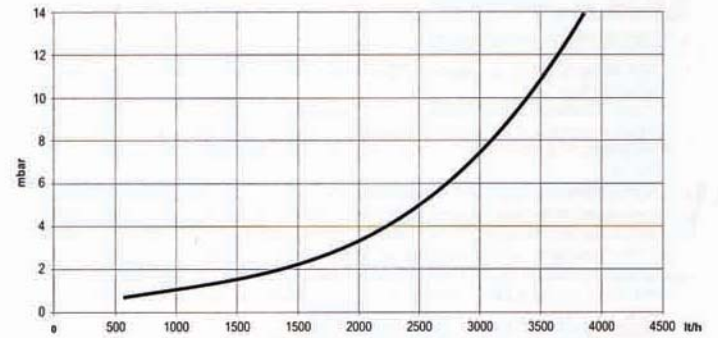


fig. 5 - Pressure loss

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