INSTALLATION AND MAINTENANCE OF

THE ULMA Boiler Mini 20 kW

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Information

- Keep this manual so that it is accessible to professionals and future needs.
- Read this manual carefully before starting up the boiler.
- The efficiency of the boiler is calculated after the maximum amount pellets that can be fed and combusted in the burner during 1 hour (intended for combustion of normal wood pellets as an average of the fuel specification).
- Follow the manual and its instructions carefully to recommended management and maintenance.

Registration to the local building authority in your municipality

N.B.: At every change of heating system, the local building authority of the municipality has to be contacted and a so called “Construction Registration” is made.

Inspection
Heating plants installed today shall be inspected and approved by authorized inspector like the local certified chimney-sweeper. The local building authority in the municipality can inform you how this could work.

Important at installation

- It must be connected to a buffer tank of at least 125 L. and also installed with a Laddomat 11-30 and controlling charge pump.
- Make sure that boiler and heating system is water filled and de-aerated before starting the combustion.
- Installation shall be made by certified ventilation and sanitation engineer and electrician.
- . **N.B.!** The burner shall be inserted to maximum in the boiler. Control this carefully in the future also if the burner is disconnected for example cleaning and service.
- At adjustment of the burner draw limiter shall be adjusted after the draft condition of the chimney. ..

Sweeping
Chimney sweeping made in accordance with the fire-protection law shall be made frequently during the year. This is made by your local chimney sweeper. Regular cleaning of heating surface of the boiler shall be made in a way so that good operating economy is obtained. Prepare sweeping by turning off the boiler at least a couple of hours before cleaning to minimize the amount of ignited ash.

Warning!
See to that the power to the boiler is turned off before the cap over the burner is removed and dismount cabling to the burner when the burner is removed from the boiler.

Maintenance agreement increases operation length and life of the unit
ULMA AB recommends subscription of annual maintenance agreement.
For more information contact your local ULMA retailer.

Change of wear parts
ULMA AB always recommends that wear parts, when needed, are being changed by an authorized service technician at your ULMA retailer. ULMA’s retailers can provide necessary spare parts and at change make sure that the part being changed on the unit go through alignment and that a flue-gas analysis of the unit is made.

Function & description

ULMA BOILER Midi

Belongs to a new generation of pellet boiler that is specially built only for pellet combustion which means that it has a standing convection system and special design of the hearth to catch the smallest soot particles on the convection surfaces and longest possible flue-gas way to increase the efficiency.
The Ulma Boiler Mini runs with 20-40 kW Ulma pellet burner. The boiler has a water volume of 29 L and loads a buffer tank of at least 150 L.

The boiler consists of a combustion chamber with a belonging gas canal surrounded by an outer shell that holds 29 liter of water. At combustion of pellets the heat from the burner goes straight to the boiler water.

Sweeping

Regular cleaning of heating surfaces is made from the top by lift up the lid placed in the center on the top of the boiler. The boiler is provided with an extra large ash box in the bottom part to facilitate the maintenance. The ash box is emptied is emptied when necessary.Normally 3-4 times per year. Control of the ash amount in the box should be made at least one time per month. The ash box holds about 50 liters of ash.

1. Lift up the lid.

2. Pull up the turbulators appr. 10 -15 cm and drop Repeat a couple of times.

Small dimensions facilitate placing

The dimensions of the ULMA BOILER make it very easy to install. The small smooth dimensions make it fit in boiler rooms that normally would be considered tight.

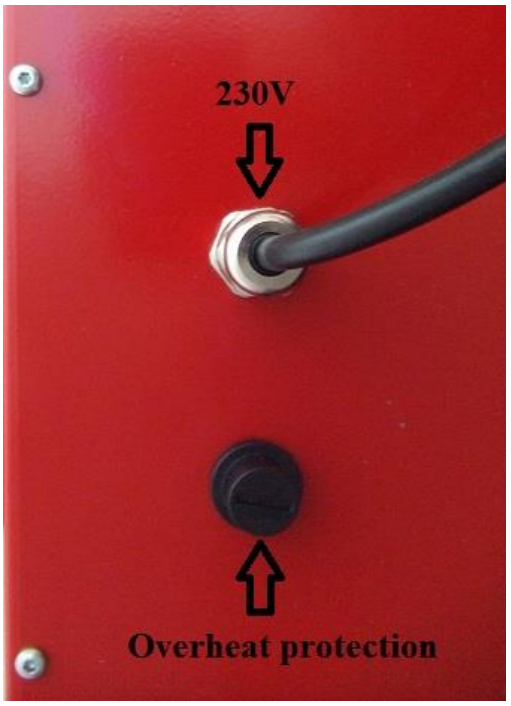
The pipe joints are located on both sides of the boiler. The electrical installation is easily made via already existing cables and you do not have to demount any parts for this procedure.

Connection for the burner

Technical data

Max working pressure	3 Bar
Fluepipe	160 mm
Watervolume	29 L
Min chimney area	80 cm2
Connection hole (burner)	Ø 154mm
Power connection	230 VAC
Warranty	5 year leakage
Min under pressure	1,5 / vp
Efficiency	Appr. 90- 92%
Max effect	40 kW
Fluepipe CC from floor	84 cm
Ashbox	Appr. 52 L
Weight	Appr. 205 Kg

Installation



At the rear of the boiler you find the flue pipe connection and the plug for power connection.

Radiator system and expansion tank
Filling of the system shall be realized with all valves in open position and the circulation pump shall be turned off. The system is carefully ventilated during the filling. When the unit has been running for a couple of days ventilation and repeated filling should be made.

Note! See special instructions for filling of water.
The volume of the expansion tank is chosen in following way:
Open system: 5 % of the water volume in the heating system.
Closed system: The volume of the tank should be made from directions from manufacturer of closed tanks.

In the table below examples of suitable expansion tanks for closed systems are shown.
Open system with 300 litres water volume requires at least 15 litres expansion tank.
* System volume = boiler volume + pipe volume + radiator volume

System volume (liter)*	Opening pressure (bar)	Oppression (bar)	Tank volume (liter) 70˚C - 90˚C
Approx. 300	1,5	0,5	18
Approx. 300	1,5	1,0	35

Planning- and installation work
The planning – and installation work of the unit shall be made in a professional way with special attention of common and local regulations and ordinances. .
The operation pressure is maximum 1,5 bar. Before the unit is put into work, and always at the beginning of the combustion season following inspections should be made:
1. that the heating system is filled with water and ventilated
2. that the circulation pump is working
3. that the valves of the system are open
4. that potential control – and safety automatic system is working
5. that the chimney has required draft and that the fresh air ventilation is open

Safety valve
If a closed expansion tank is installed to the radiator system, the safety valve should be controlled 3-4 times per year. Activate the valve by pressing or turning the control and then make sure that water is entering into the waste pipe that goes from valve to drainage.

Maximal hot water capacity
If you have a higher setting of the boiler temperature, the better hot water capacity you get (recommended setting = 85˚C).

Filling of water
Before connecting of heat, the heating system has to be filled with water.
The filling of the systems is made in following way:
1. Open all stop taps, even the shunt valve. The pump shall be turned off.
2 Filling of water to boiler and radiator. Deareation is made on the radiators.
3 Delivery of cold water to the hot water coil. This is done by opening the stop tap on the cold water fittings and ventilation is made by tapping out from a hot water tap.
4 When the system is completely filled the circulation pump can be started and heating begin.
5 When the water inside the boiler has reached set operating temperature, the pump should be turned off and another airing be made on the radiators. This should be repeated several times. Keep in mind that there is a lot of air inside the tap water. The volume can go up to approx. 8-10% why deaeration can take time – especially at bigger volumes. Closed systems shall be filled so that the manometer stands at the desired system pressure, distance from the manometer to the highest located radiator in meter x 0,1 which gives the system pressure in bar. Set the red pointers of the manometer at the same value as the big pointer. Preferred hot water temperature is set on the mixing fittings.

↑ Boiler room & chimney

The construction regulations of the National Housing Board include detailed norms for the design of the boiler room, position of boilers in boiler rooms, performance of gas flue etc. *The boiler room has to have a supply air valve with an at least 2 dm² area, this may not be closed during the time when the boiler is operating. Exhaust fan may not be installed inside the boiler room.*

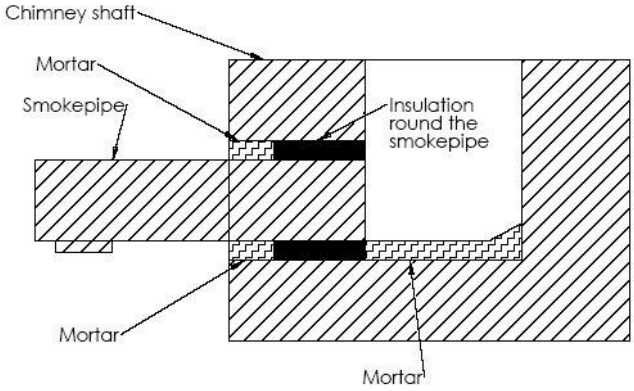
The installer and chimney-sweeper could give closer information.

The boiler should be placed on a flat and stably molded concrete bed.

The chimney connection

The ULMA BOILER has a design of the combustion chamber and flues that give the possibility of firing with very high efficiency. The boiler is suitably connected to chimney/gas flue with the provided turning flue pipe horizontally. The flue pipe canal may *never* go down. The chimney should be inspected and possibly test pressed before installation if is has never been used and had continuous maintenance by the local chimney-sweeper. At the slightest doubt, contact your certified chimney-sweeper for inspection. Note that at too low flue gas temperature the flue gases can condense with a risk of frost damage on the chimney as result. As a rule you should aim at least 70-80°C flue gas temperature 1 m down in the chimney when the burner is running, this is primarily valid for brick chimneys or similar material. The choice of flue gas temperature depends on the design and isolation of the chimney, a steel chimney or bricked chimney with flue lining tube will not be as easily damaged of low flue gas temperatures, provided that possibly condensate is continuously drained from the lowest point of the chimney. This is the responsibility of the installer to control at installation. Place the boiler at least 100 mm from the wall/bricks to facilitate service. Also leave room for possibly existing cleanout door in the brick wall.

If the chimney is made out of bricks, you have to take up the hole in the chimney shaft so that there is an approx. 20 mm blank space around the pipe. Then place the pipe in the chimney shaft and mark out the dept. Cut the pipe if needed. The pipe should be placed so that it does not cover the hole of the flue from above in any way. Then wrap the pipe with a according to our recommendations with 2-3 layers of heat resistant insulating mat. Thickness of the insulating mat is as normal standard approx. 12 mm. Then add some extra isolation from the outside in the opening and then clean the wall brickworks.



Water the polish with a sprinkler a couple of hours after to avoid cracking if the polish burns too fast. The insulating mat makes it closely and at the same time you escape cracking in the chimney wall since the pipe can move a little from thermal expansion.

The draft limiter (Back draft door)

The draft limiter shall at installation be adjusted by the installer of approx.. 0.15 hPa under pressure. Too low under pressure can create problems with overheating of the burner and risk for accumulation of flue gases in the hearth that leads to producer gas puffs at the ignition moment of the burner, a too high under pressure can cause ignition problem

↑ Management & Maintenance

Be extra attentive of to the quality of the pellets at new delivery or change of deliverer.
At new delivery a flue gas analysis should be made. Therefore we recommend a service agreement. Contact your local installer regarding information of agreement.

The tubes of the boiler should be cleaned 4-5 times per year (may vary some depending on consumption and pellet quality)

- Turn off the burner a couple of hours before service.
- Lift up the soot door on the top and clean the tubes.

Check the colour of ashes in the tubes and inside the lid. Should be gray to light brown. Is the colour black, the burner must be adjusted, otherwise it shorten the life of the burner. See dealer for adjustment of the burner.

- Pull out the burner and clean from ash residues between the burner pipes at least two times per year

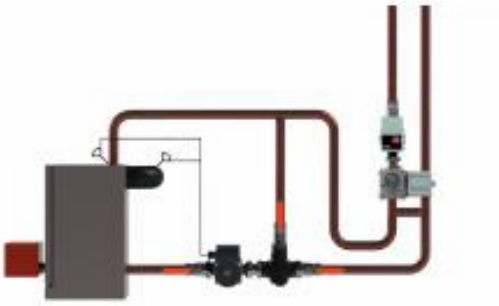
NOTE!
Always be careful with ash since it might be ignited. The ash should be kept in fireproof vessels.

LADDOMAT® 11 series

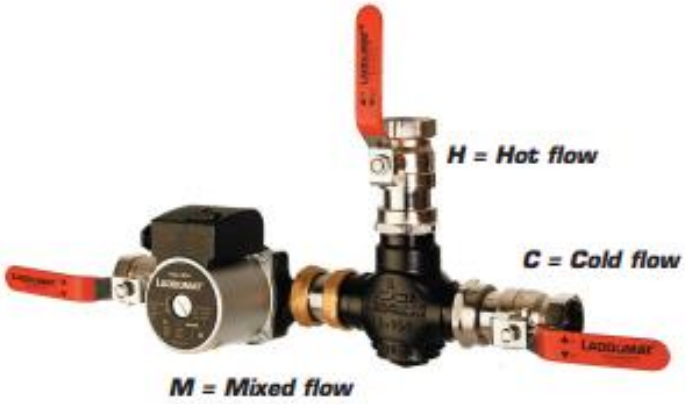
Boiler protection and optimized charging valve.

- Laddomat 11 raises the return temperature to the boiler bottom, which prevents corrosion through condensation and extends the service life of the boiler.
- Laddomat 11 enables the boiler to attain working temperature in a very short space of time. This improves boiler efficiency.
- Laddomat 11 charges the storage tank by means of a slow flow of hot water. A thin boundary layer in the storage tank is necessary for an effective, easy-to operate boiler system. With Laddomat 11 layering is optimal.
- During the final part of firing, Laddomat 11 charges the storage tank fully, thanks to the unique thermal valve, which chokes the bypass port.
- Simple dimensioning - Laddomat 11 is suitable for use with any boiler with maximum output up to 30/200 kW (at ΔT 22°C).
- Laddomat 11 is supplied with shut off valves to facilitate any servicing without having to drain the system.
- EPP insulation is standard (Laddomat 11-100).

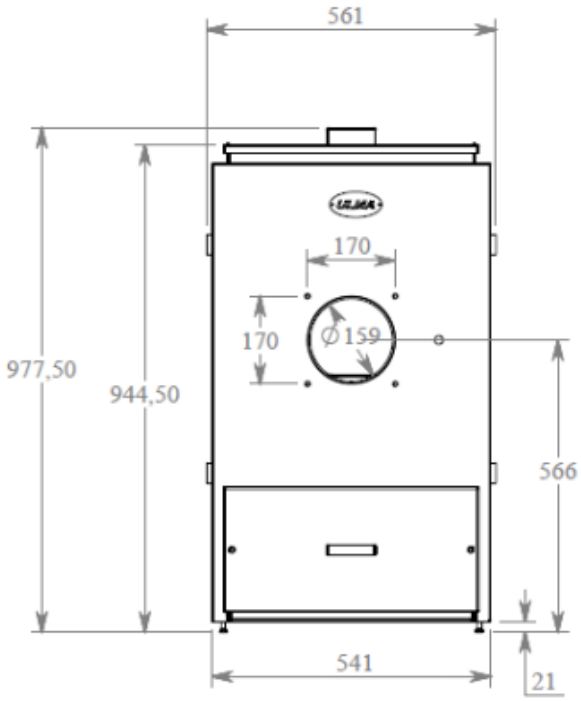
Laddomat 11 placed by the boiler or the accumulator



Installation example without accumulator.



Drawing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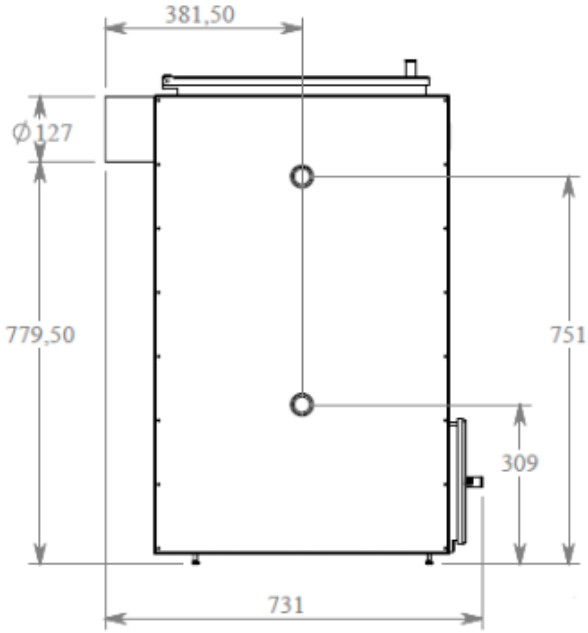
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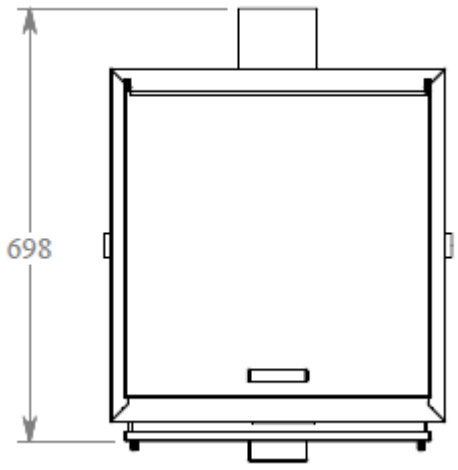
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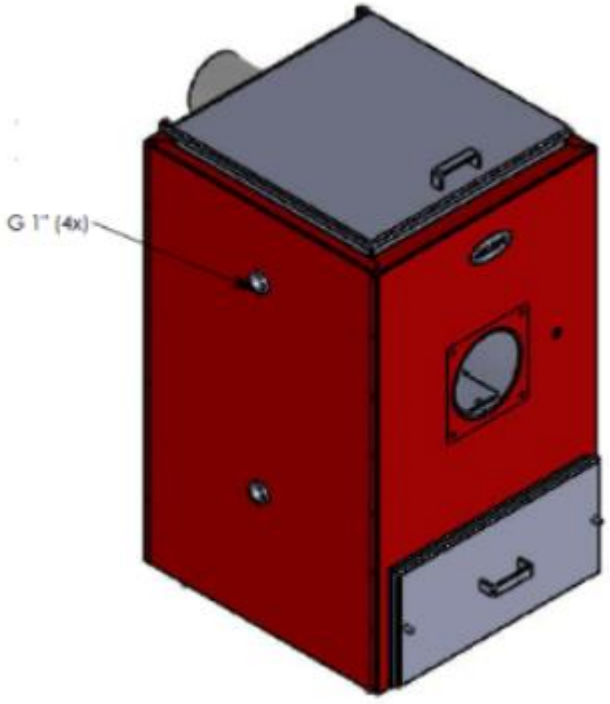
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Warranty conditions

ULMA AB leaves a 1 year warranty on the boiler regarding fabrication faults on ingoing components. (5 year leakage)
The exception are damages caused by lack of maintenance, incorrect handling or deficient installation. The warranty does not cover damages on persons or other property other than the sold product, not other consequential damages or indirect occurred damages. Working costs to change components are not included in the warranty. Ulma AB provides new components at return of defective components within 3 weeks. Components sent with receiver freight will not be gotten out.

Provided that an authorized installer has mounted or inspected the burner and that warranty/installation certificate has been sent to ULMA AB no later than 2 weeks after installation.
Yearly service should be made and service reports should be able to be shown at possible complaint.
Otherwise no warranties are valid. The retailer is liable to inform the customer this.

We reserve us the right to construction changes and dissent us from possible printing errors.

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