C20 SERIES

ELECTRIC DOMESTIC HOT WATER BOILER

INSTRUCTION MANUAL

MODELS 300 - 500 - 750 - 1000 - 1500 - 2000 - 2500

ATLANTIC BOILERS

HIGH EFFICIENCY BOILER-PLANT

ATLANTIC 2000 - boilerplant sales ACM ATLANTIC - commissioning and maintenance ATLANTIC 4422 – spares
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TANKS FOR EXTERNAL STORAGE AND HEATING OF HOT WATER INSTRUCTION MANUAL

1. Introduction

The water tank is a pressurised container manufactured in accordance with the safety requirements established in the Directive 97/23/EC from the European Parliament and the 29 May, 1997 Council concerning the legislation on pressure equipment.

The following instructions have been written following that established in point 3.4 of Annex I of Directive 97/23/EC and each doubled coated water heater is to be sold accompanied by this document.

This instruction manual covers the whole range of double coated water heater models.

The heater's electric components have been manufactured in accordance with those requisites established in the Directive 89/336/EC from the European Parliament and the 1 May, 1989 Council on member state legislation on Electromagnetic compatibility, with tests carried out in CETIAT Nº 2214094/2 on 28/10/2002 and the council's directive 73/23/EEC from 19 February, 1973 concerning the member's states regulations on electric equipment to be used with specific voltage limits.

2. Technical characteristics of the deposit and usage

The water tank is produced in DUPLEX 2205 stainless steel, thus suited to resist the combined actions of drinking water (with characteristics in accordance with the current regulations) at 70º C and with chlorine dissolved in it.

It is a sealed container designed for the following working conditions:
• Tested pressure Primary/ Secondary: 17 / 20 bar.
• Maximum working pressure Primary/Secondary: 8 / 8 bar.
• Min/Max designed temperature: 5 / 90 ºC
• Operating temperature: 60 °C
• Power supply voltage: 230 V 50/60 Hz (Single phase)
(If with an electric panel)
• Volume: Depending on the model (SEE THE SPECIFICATIONS PLATE ON THE HEATER)

You will find more of the serpentine water heater's characteristics on the specifications plate on the tank, including:
• Year made
• Tested pressure.

Water tanks for external storage and heating of hot water with a plate heat-exchanger (for water tanks ≥ 250 litres) or wood stove pan exchangers (for water tanks up to 200 litres).

With the aim of achieving maximum tank durability, it is COMPLETELY made of DUPLEX 2205 stainless steel, making it specially indicated for producing and storing hot tap water.

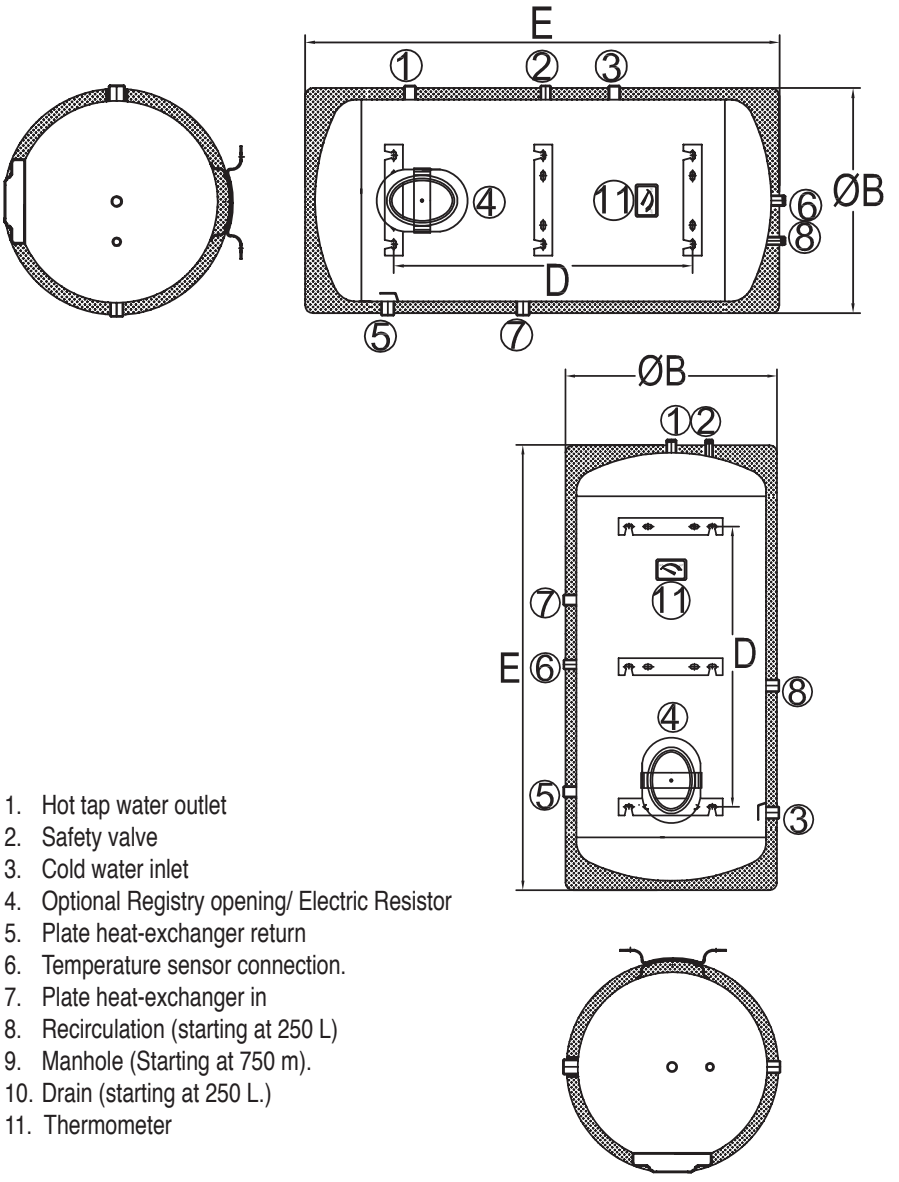
The tank is thermally insulated with injected polyurethane liquid without CFCs. This material has the lowest thermal conductivity for insulation, practically eliminating heat loss.

The exterior finish has a white polyester covering reinforced with fibreglass, providing it with extra durability.

DIMENSIONS AND CONNECTIONS

3.1 Dimensions/connections Horizontal Installation (Pan heat exchanger)

HORIZONTAL INSTALLATION

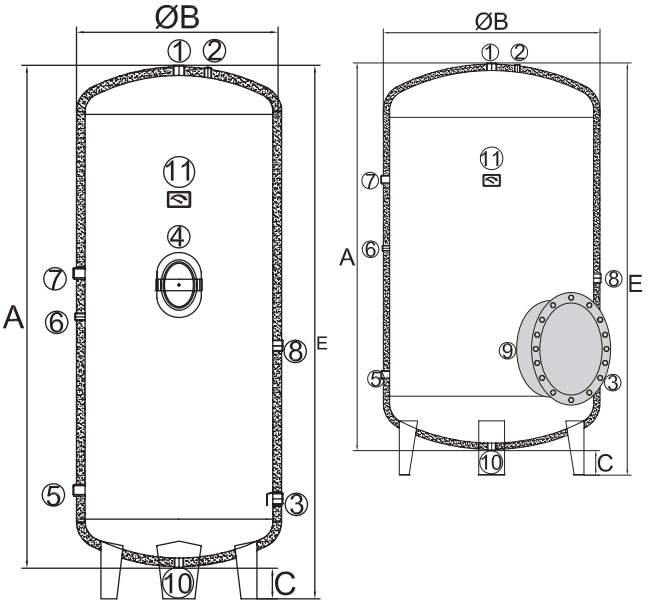


1. Hot tap water outlet
2. Safety valve
3. Cold water inlet
4. Optional Registry opening/ Electric Resistor
5. Plate heat-exchanger return
6. Temperature sensor connection.
7. Plate heat-exchanger in
8. Recirculation (starting at 250 L)
9. Manhole (Starting at 750 m).
10. Drain (starting at 250 L.)
11. Thermometer

DIMENSIONS AND CONNECTIONS

3.2 Dimensions/connections Vertical Installation (Plate heat exchanger)

VERTICAL INSTALLATION



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REF.	MODEL	CAP. (L)	General Dimensions (mm)					CONNECTIONS									
			A	ØB	C	D	E	1	2	3	4	5	6	7	8	9	10
1050020	C20-80	80	950	430		540	950	3/4"	1/2"	3/4"	1,1/4"	3/4"	1/2"	3/4"	3/4"		
1050021	C20-100	100	1140	430		740	1140	3/4"	1/2"	3/4"	1,1/4"	3/4"	1/2"	3/4"	3/4"		
1050022	C20-125	125	1025	510		590	1025	3/4"	1/2"	3/4"	Elliptical 150 x100	3/4"	1/2"	3/4"	3/4"		
1050023	C20-150	150	1175	510		740	1175	3/4"	1/2"	3/4"	Elliptical 150 x100	3/4"	1/2"	3/4"	3/4"		
1050024	C20-200	200	1200	580		740	1200	3/4"	1/2"	3/4"	Elliptical 150 x100	3/4"	1/2"	3/4"	3/4"		
1050025	C20-250	250	1450	580			1450	3/4"	1/2"	3/4"	Elliptical 150 x100	3/4"	1/2"	3/4"	3/4"		3/4"
1050026	C20-300	300	1700	580			1700	1"	1/2"	1"	Elliptical 150 x100	3/4"	1/2"	3/4"	3/4"		3/4"
1050027	C20-500	500	1750	720	105		1860	1"	1/2"	1"	Elliptical 150 x100	1"	1/2"	1"	3/4"		3/4"
1050028	C20-750	750	1660	890	130		1810	1,1/4"	1/2"	1,1/4"		1,1/4"	1/2"	1,1/4"	1"	ø interior 400	1"
1050029	C20-1000	1000	2110	890	130		2260	1,1/2"	1/2"	1,1/2"		1,1/4"	1/2"	1,1/4"	1"	ø interior 400	1"
1050030	C20-1500	1500	2390	1020	135		2505	2"	1/2"	2"		1,1/4"	1/2"	1,1/4"	1"	ø interior 400	1"
1050031	C20-2000	2000	2145	1270	150		2260	2"	1/2"	2"		1,1/4"	1/2"	1,1/4"	1"	ø interior 400	1,1/4"
1050032	C20-2500	2500	2645	1270	150		2830	2"	1/2"	2"		1,1/4"	1/2"	1,1/4"	1"	ø interior 400	1,1/4"

3. Installation

The heater must be installed by an Authorised technician or Company, keeping in mind the current applicable national regulations and instructions in this manual

The water heater can be mounted to a wall or the floor. When the tank's capacity is equal to or greater than 250 litres, they must always be installed on the floor.

- Wall mount tanks:
  The tap water heater tank is mounted to the wall with bolts of steel or a similarly strong material, 10mm in diameter, inserted at least 8 cm in. For thicknesses of 15 cm or less, the bolts must pass through the wall and joined with metallic plates. They must not be installed on single hollow brick walls.

- Floor tanks:
  Keeping in mind that the plate must be resistant to the permanent pressure from the weight of the heater when filled with water.

WATER HEATER LOCATION

The tank must not be installed outdoors, unless explicitly having ordered it for this purpose. If installed outdoors, we recommend that it not be exposed to direct sunlight. The tank is thermally insulated, so the loss of heat is kept to a minimum. However, in order to obtain maximum results, we recommend not installing it in cold places or with drafts.

If the tank comes with an electric resistor heater, also keep in mind the location indications in accordance with the applicable electrical regulation.

WATER CONNECTION

Connection to the tap water circuit

The following devices are installed on the heater following the direction of the water circuit (see installation diagram, point 3.3):

- Water inlet valve.
- A pressure reduction valve is to be installed when the water supply pressure is greater than the tank's maximum operating pressure (8 bar) and is to be calibrated to a value equal to or less than the operating pressure.
- Anti-return valve.
- A safety valve (which can also be installed to the tank) with a drain pipe that can freely drain above the upper border of the water receptacle. The valve's drain pipe must not be connected directly to a sewage drain. Drainage must be done so as to effectively avoid damage to people, animals or goods.

The safety valve is regulated at a pressure so as not to surpass the tank's maximum operating pressure (8 bar), and its safety devices are sealed if the valve has a device for changing pressure errors.

An faucet can not be installed between the tank and safety valve.

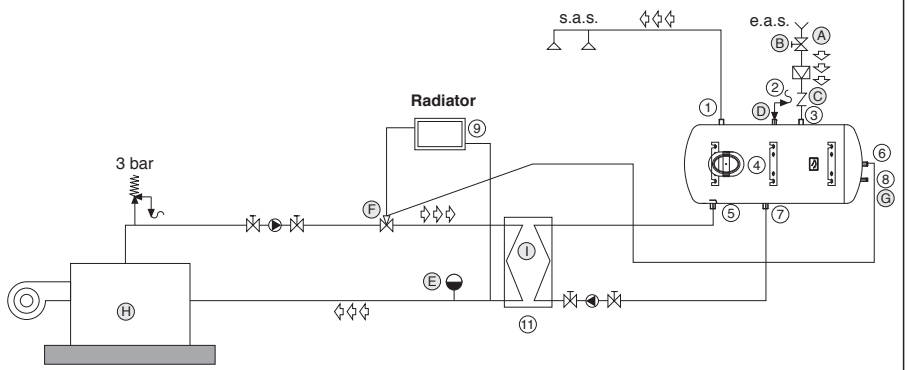
Connection to the heating element (see installation diagram)

The tank's primary circuit must be connected to the output (5) and return (6) of the heating element (heat exchange plates) and the tap water regulating thermostat, which must be screwed to the tank's connection (7), to the sectioning/regulating/control valve (ex. three-way valve) or to the heated liquid pump to the tank when applicable.

An expansion vessel (8) with the proper characteristics is installed to the primary circuit return.

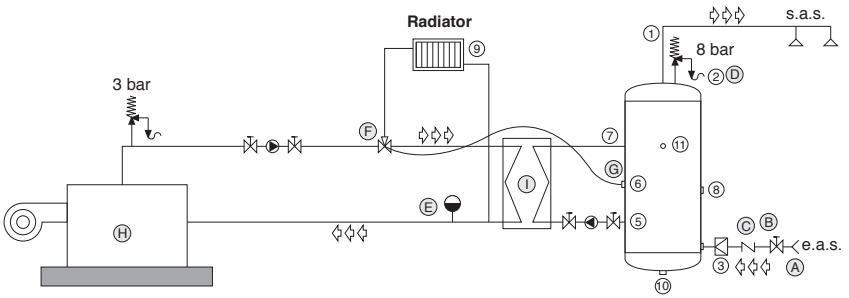
INSTALLATION DIAGRAM

HORIZONTAL INSTALLATION



A. Close valve.
B. Pressure reduction valve.
C. Anti-return valve.
D. Safety valve.
E. Expansion vessel.
F. Diverter valve.
G. Thermostat
H. Boiler
I. Plate heat-exchanger

VERTICAL INSTALLATION



4. Start-up

These operations must be performed by an authorised technician, keeping in mind the current applicable national regulations and following instructions.

Once installed, the tank must be filled with water by opening the home's main faucet, a hot water faucet (ex. shower, sink…) and a cold water faucet from the equipment (number 1 on the installation diagram), until all of the air is expelled from the tank. Then close the water faucet.

The heating liquid is filled and regulated by the hot water thermostat at 60ºC. Then turn the heater on and it will run until the water in the tank reaches the thermostat's set temperature.

During the tap water heating phase, it is common for the safety valve to leak slightly. Never plug the valve since that could induce the tank to explode.

Check to see that water is not leaking from any connections; if so, tighten them. If after 24-48 hours the problem persists, contact the distributor.

5. Maintenance

Maintenance operations must be performed by an authorised technician, keeping in mind the current applicable national regulations and following instructions.

In order to properly maintain the tank, we recommend inspecting the inside every year. To do so you must empty it following these steps:

- Close the cold tap water inlet.
- Open a hot water faucet somewhere around the facilities and let it run at least until the tank has been depressurised.
- Open the tank's drain.
- Once it is completely drained, open the manhole (tanks>250 l) and clean the inside of the tank with water and a plastic or steel brush. If the tank is smaller than 250 L, you can open the cold water connection when the drain connection is open, and flush any sediment accumulated at the bottom of the tank.
- Then close the drain and manhole or cold water inlet.

Two methods for the disinfection process of heating tanks

- With a chemical disinfection like chlorine, follow this procedure:

  - Chlorinate the tank with 20-30 mg/l of residue free chlorine, at a temperature at or below 30 ºC and a pH of 7-8, passing 1-2 mg/l through the complete circuit and maintaining it for 3 to 2 hours. Alternatively you can use 4-5 mg/l in the deposit for 12 hours.
  - Neutralise the amount of residue-free chlorine and drain.
  - Clean the tank walls thoroughly, eliminating incrustations and carrying out the necessary repairs and rinsing with water.
  - Refill with water and re-establish the normal operating conditions. If reclorination is necessary, use set dosages.

- With a thermal disinfection , follow this procedure:

  - Empty the system, if necessary clean the tank walls thoroughly, carrying out any necessary repairs, and rinse with clean water.
  - Fill the water heater with water and raise the water temperature to 70º C and maintain it for at least 2 hours. Then open the faucets and showers by sector for 5 minutes sequentially. Confirm that the temperature is coming out at all points at 60º C.

Once maintenance has been completed, to start up the heater again follow the steps in point 5 of this manual.

To clean the outside of the tank, we suggest using a humid washcloth with the proper cleaning products. Do not use abrasive products or solvents.

We recommend draining the tank if it will not be used for long periods of time, or if not used during freezes.

6. Safety measures for waste drainage

The following safety instructions must be strictly enforced to avoid hurting people, animals or things including the tank itself.

The tank's operating pressure must not be greater than that indicated in this manual and on the specification's plate on the tank. The technical specifications on this plate must always be followed.

The tank should not be disconnected from its installation without previously having completely depressurized it.

Do not use the water heater for any other non-designated purpose.

7. Considerations if the tank has a control panel

The tank may come with a control panel when requested.

7.1 Control panel parts

The control panel has the controls to operate the heating system (ex. boiler) and view the temperature at which the hot tap water is set at within the tank. It includes a thermostat and thermometer.

• Thermostat
  This allows you to set the temperature at which to heat the water in the tank with a heating element (ex. boiler).The common temperature is 60º C.

• Thermometer
  This indicates the water temperature within the tank.

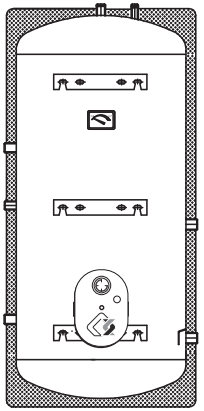


Figure 1- Control panel location.

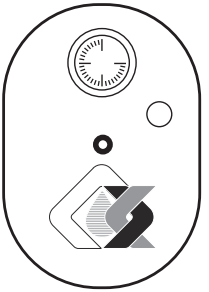


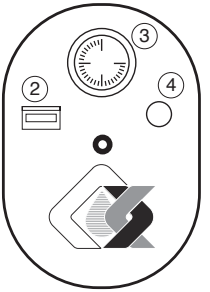
Figure 2- Control panel.

8. Considerations if the double coated water heater has an electric panel with a rheostat

The doubled coated water heaters with supports come with a manhole opening, which upon the client's request, can come with an electric panel with a rheostat. Figure 1 displays this additional system.

8.1 Parts of the additional electric system.

- **Electrical panel**
  The control panel includes operating controls for the heater's rheostat. It includes a thermostat, switch, thermometer and safety thermostat.



2. Switch
3. Thermostat
4. Safety thermostat

- **Electric resistor**
  Water is heated through the AISI 316 stainless steel sheathed electric resistor
  - Power supply voltage: 230 V 50/60 Hz

- **Temperature sensor sheath.**
  This sheath has a thermostat hot water temperature regulator shell, the thermometer and safety thermostat shell.

8.2 Operating instructions for the electric heating system

Never start the system if the tank is not full of water. Doing so may damage the electric components.

Operating the electric system is done through the control panel controls. Figure 2 shows the layout of the control panel. Below we detail its functions:

- **Lit switch.**
  Two positions: Upper part pressed (ON position) and lower part pressed (OFF position).

- ON
The resistor will heat the water up to the temperature set on the thermostat (usually 60ºC). During the heating process the pilot light is on. When the water reaches the set temperature on the thermostat, it will turn off the resistor and the pilot light, and turning on again when the water temperature decreases (which occurs when hot water is consumed).

- OFF
In this position the resistor is deactivated. The water temperature will decrease as hot water is consumed.

- **Thermostat**
  This is used to set the temperature at which the electric resistor will heat the deposit's water. The common temperature is 60º C.

- **Thermometer**
  This indicates the water temperature within the tank.

- **Safety thermostat**
  This is used to prevent anomalous water heating which could occur due to a thermostat failure. The safety thermostat temperature shuts off the resistor's circuit if the water reaches 110º C.

You can check to see if the safety thermostat has tripped by removing the small plastic cover. The safety thermostat has tripped if you see a small red button jutting out from the safety thermostat's body. If this is the case, disconnect the electric system from the mains and immediately call your technical service. Beware if you use the hot water in these conditions, since it is possible that it runs at a much higher temperature than usual and could be a burning hazard.

To operate the electric heating system, set the thermostat at the desired temperature (60º C) and place the switch in the ON position.

As a precautionary measure, never operate the electric control panel if the area's floor is wet (ex. a bathroom after a shower), since there is a risk of an electric shock, just like with any other electric device.

When disconnecting the device, do so by pulling on the plug, never the cord.

9. Guarantee

Atlantic Boilers guarantees the tank against corrosion for 5 years, only as long as installation, start-up and maintenance has been performed properly and when the water used complies with tap water standards.

Atlantic Boilers guarantees this devices electric resistor against corrosion for 2 years, as long as the previously mentioned requisites in point 8.2 are fulfilled and when the water quality is in compliance with the applicable legislation.

Each device comes with a guarantee card which must be stamped by the distributor, then send the factory the corresponding section and file the user's section along with the purchase invoice throughout the guarantee period.

With this document the user may read all the cases in which the device is not covered by the guarantee.

Each device also comes with a Conformity Certificate and Pressure Certificate, which can be requested from the distributor.

Non-reception of the form copy properly filled-in, or if the device does not have its corresponding factory specification's plate, the guarantee is void.

ATLANTIC BOILERS

HIGH EFFICIENCY CONDENSING BOILER-PLANT

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