

# HM

HeatMaster®

## *Installation, Operating and Servicing Instructions*

**HeatMaster® 200 N**

**HeatMaster® 200 F**



*excellence in hot water*



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**TARGET GROUP**

This manual is intended for the use of:

- final users of the appliance;
- the engineer installing and starting up the appliance;
- the engineering and design department;
- the installer responsible for servicing or maintaining the appliance.

**SYMBOLS**

The following symbols are used in this manual:



**Essential instruction for operating the system correctly.**



**Essential instruction for personal safety or environmental protection.**



**Danger of electrocution.**



**Risk of scalding.**

**CERTIFICATION**

The appliances carry the “CE” mark, in accordance with the standards in force in the various countries (European Directive 92/42/CEE “Efficiency”).



**GENERAL INFORMATION AND SAFETY INSTRUCTIONS**

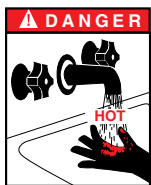
**General information**

This documentation forms part of the items delivered with the appliance and must be given to the user to keep in a safe place!

This appliance must be serviced and repaired by an approved installer, in accordance with current standards in force.

ACV declines all liability for any damage caused as a result of incorrect installation or as a result of the use of components or connections that are not approved by ACV for this application.

**Temperatures**



This boiler is designed for central heating systems with a maximum outlet temperature of 90°C. Therefore, the central heating pipelines and the radiators must reach this temperature.

The waste-gas pipe lines must reach temperatures in excess of 100°C.

The hot water can reach temperatures in excess of 60°C.

**Installation**



Before installing and commissioning the boiler, first carefully read this manual.

Position the **HeatMaster®** according to the safety rules and standards in force. You must comply with the ventilation requirements for the room where appliances of this type are installed. All air vents must remain unobstructed at all times.

It is prohibited to modify the interior of the appliance in any way, without the manufacturer's prior written agreement.

**Service**

In order to ensure the appliance operates safely and correctly, it is important to have it serviced and reconditioned every year by an installer or an approved service company.

**Faults**

Despite the strict quality standards imposed on its appliances by ACV during production, inspection, and transport, faults may occur. Please immediately inform your approved installer about such faults. Remember to give the fault code as it appears on the screen.

Only genuine factory parts may be used as replacement parts. Please go to page 13 for a list of spare parts and their ACV reference numbers.

**Important note:** ACV reserves the right to change the technical characteristics and specification of its products without notice.

**USING THE BOILER**

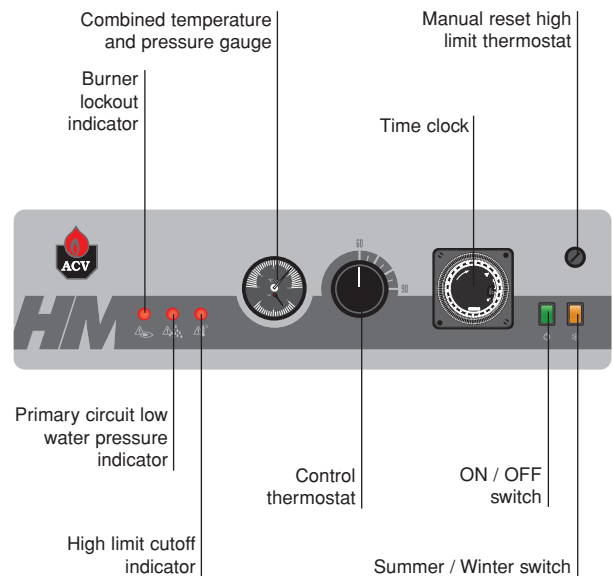


**It is compulsory to have your system serviced every year by a competent engineer. In the event of heavy use of the boiler, it may require servicing on a more regular basis than once a year. In this case, contact your installer for advice.**

**Starting the burner**

In conditions of normal operation, the burner starts automatically if the temperature of the boiler is below the set point and goes off when this value is reached.

**Control panel**



**The user must not attempt to gain access to the components inside the control panel.**

**1. On/Off switch**

This turns the HeatMaster on or off.

**2. Control thermostat - 60 to 90°C**

When using the **HeatMaster®** as a hot water generator only, the temperature can be set between 60°C and 90°C. If the **HeatMaster®** is used for both hot water and central heating, the control thermostat would normally be set at 80°C to achieve optimum operating conditions.

**3. Summer/Winter switch**

This turns the heating pump (if fitted) on or off.

**4. Manual reset high limit thermostat**

If the boiler temperature exceeds 103°C this safety device will activate and the high temperature indicator will light up. To reset - first allow the boiler to cool to below 60°C, unscrew the cap and press the reset button using a pencil or similar pointed device, replace the cap. If the fault persists, turn the boiler off and call an engineer.

**5. Time clock**

This allows the **HeatMaster®** to be timed on and off and operates on a 24 hour sequence. Around the outside of the clock there are a number of white tabs, these allow 15 minute switching periods. To set the time clock simply push outwards the number of tabs required for ON period.

Remember:           TAB IN = HeatMaster OFF  
                           TAB OUT = HeatMaster ON

**6. Temperature and pressure gauge**

This gauge indicates both the temperature of the **HeatMaster®** and the pressure within the primary circuit.

The temperature should not exceed 90°C - if it does, switch the boiler off and check the thermostat setting. If the fault persists, call an engineer.

The pressure should not fall below 1bar, if it does the please see the 'Heating System Pressure' paragraph later in this section.

**7. Low primary water pressure indicator**

If this indicator lights up, the primary circuit of the **HeatMaster®** requires topping up with water. Please see the 'Heating System Pressure' paragraph later in this section.

**Heating-system pressure**

The heating circuit may require a top-up of water. The pressure gauge, located beside the display, gives the pressure.



**In the case of repeated fills, contact your installer.**

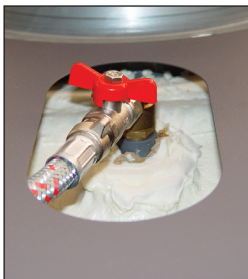
The pressure of the primary circuit must be at least 1 bar and must be regularly checked by the end user. If the pressure falls below 0.5 bar, the low-water-level pressure switch locks the appliance until the pressure in the system returns to above 0.8 bar.

The **HeatMaster® 200 N / 200 F** is fitted with a purpose-designed fill set (see Fig. A and B). Always make sure that the appliance is switched off when filling the system.

To do this, turn the On/Off switch on the left of the control panel to Off.

For more information, please ask your installer when delivering the system.

The appliance is fitted with a safety valve. If the system pressure exceeds 3 bars, this valve opens and drains the water from the system. In this case, contact your installer.



**Fig. A**  
(cover)



**Fig. B**  
(rear panel)

**OPERATING PRINCIPLE**

The **HeatMaster®** is a high performance, direct fired hot water storage heater, which has indirect heat transfer due to its Tank-in-Tank construction.

At the heart of the **HeatMaster®** is a stainless steel cylinder through which the flue tubes pass. This is surrounded by a mild steel shell containing the primary water (neutral fluid). The outer shell extends down to the combustion chamber and even around the flue tubes. The area of the heat transfer surface is therefore much greater than that of standard direct fired water heaters.

A circulating pump fitted to the primary circuit moves the water around the tank, heating it faster and maintaining an even temperature across the primary jacket.

The burner, either gas or oil, fires onto the primary water which indirectly heats the stainless steel cylinder containing the DHW. As with all Tank-in-Tanks, this is corrugated over its full height and suspended in the **HeatMaster®** by its hot and cold water connections.

The cylinder expands and contracts during use and this, together with the fact that cold water does not come into contact with the intense heat of the burner flame, means that limescale buildup is prevented.

This scale resistant feature, along with the corrosion resistance of stainless steel, eliminates the need for sacrificial anodes.

The **HeatMaster®** has one very major advantage over other direct fired water heaters - because it heats the DHW with a primary circuit, this primary water can be used to provide central heating as well.

By connecting two, three, four or more **HeatMaster®** together in a module, most hot water and heating demands can be met.

Indeed, when used in conjunction with HR and **Jumbo** hot water storage tanks the **HeatMaster** can supply even the largest hot water requirement.

**Standard equipment**

The **HeatMaster 200** has the following items as standard:

- On/off switch
- Summer/Winter switch
- Control thermostat (60 - 90°C)
- Thermal reset high-limit thermostat (95°C)
- Manual reset high-limit thermostat
- Hot water priority thermostat
- Primary circulating shunt pump
- Primary expansion vessels
- Primary safety valve
- Pressure and temperature gauge
- Drain valve
- Body completely insulated in rigid polyurethane foam

**PACKING**

The **HeatMaster** is delivered in separate packages.

- Package No. 1: Foam-insulated body, hydraulic accessories, and control panel.
- Package No. 2: Chimney reducing pipe.
- Package No. 3: Wooden protective casing (jacket and accessory).
- Package No. 4: "RIELLO" RG4S 396 T1 burner (*HM 200 F only*).

# DESCRIPTION

## CONSTRUCTION FEATURES

### Outer body

The outer body, containing the primary water, is made from STW 22 carbon steel.

### TANK-IN-TANK heat exchanger

The ring-shaped inner tank with its large heating surface for producing domestic hot water is built of Chrome/Nickel 18/10 stainless steel. It is corrugated over its full height by an exclusive production process and entirely argon arc welded by the TIG (Tungsten Inert Gas) method.

### Combustion gas circuit

The combustion gas circuit is paint-protected and comprises:

- **Flue pipes**

Depending on output, **HeatMaster® 200** models contain several steel flue pipes with an internal diameter of 64 mm. Each pipe is fitted with a baffle of special steel designed to improve heat exchange and reduce flue gas temperature.

- **Combustion chamber**

The combustion chamber on **HeatMaster®** models is entirely water cooled.

### Insulation

The boiler body is fully insulated by rigid polyurethane foam with a high thermal insulation coefficient, sprayed on without the use of CFCs.

### Casing

The boiler is covered by a steel jacket which has been scoured and phosphated before being stove enamelled at 220°C.

### Burner

The **HM 200 F** model is always delivered with a "RIELLO" RG4S 396 T1 fuel oil burner.

### Legend

1. "Tank-in-Tank" type storage exchanger
2. Flue ways
3. Primary circuit
4. Combustion chamber
5. Turbulators
6. Heating outlet
7. Stainless steel pocket
8. Heating return
9. Boiler drain cock
10. Hot water priority thermostat bulb
11. Cold water inlet
12. Bulbs of the thermal reset high-limit 95°C thermostat and the manual reset high-limit 103°C thermostat
13. Insulation
14. Low-water-level pressure switch
15. Hot water outlet
16. Chimney reducer
17. Steam trap
18. T&P valve (optional)
19. Thermostat-pressure gauge bulb
20. 60 - 90°C control thermostat bulb
21. Flange of the burner chamber plate

