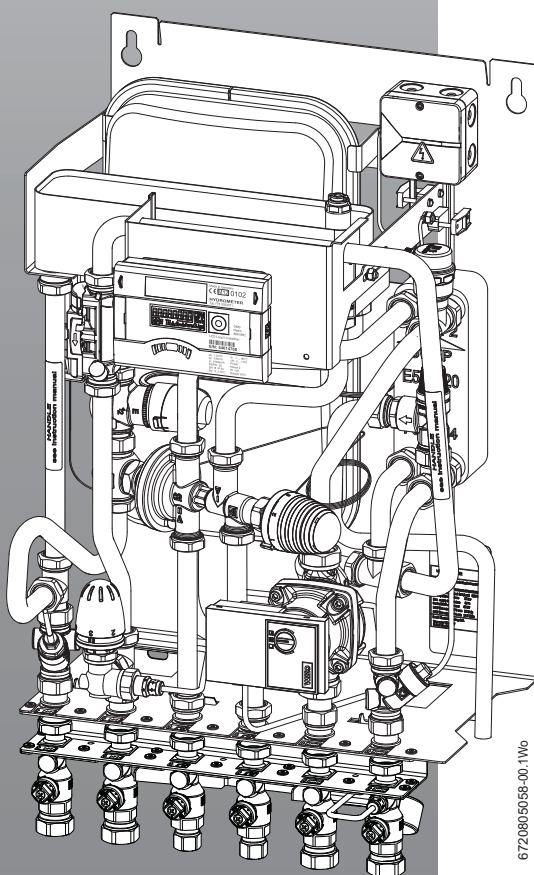


INSTALLATION AND SERVICING INSTRUCTIONS

HEAT DISTRIBUTION UNIT

GREENSTAR HDU

FOR CONNECTION TO A DISTRICT HEATING SYSTEM SUPPLYING DECENTRALISED HEATING AND DOMESTIC HOT WATER



6720805058-00.1Wo

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1 KEY TO SYMBOLS AND SAFETY INSTRUCTIONS

1.1 KEY TO SYMBOLS

WARNINGS



Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

IMPORTANT INFORMATION



This symbol indicates important information where there is no risk to people or property.

ADDITIONAL SYMBOLS

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
–	List entry (second level)

Table 1

1.2 GENERAL SAFETY INSTRUCTIONS

These installation instructions are intended for gas fitters, plumbers, heating engineers and electricians.

- ▶ Read any installation instructions (Heat distribution unit, heating controls, etc.) carefully before starting the installation.
- ▶ Observe the safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Record all work carried out.

INTENDED USE

This heat distribution unit must only be used as a source of heating and hot water in a sealed system.

Any other use is considered inappropriate. Any damage that results from such use is excluded from liability.

HEAT EXCHANGER

The unit contains copper-soldered heat exchangers.

Please ensure the system complies with the requirements in **BS EN 12502 Part 1 and 2** to avoid any damage caused by corrosion.

INSTALLATION, COMMISSIONING AND SERVICING

Installation, commissioning and servicing must only be carried out by a competent person.

- ▶ Only use original spares.

ELECTRICAL WORK

Electrical work must only be carried out by a qualified electrician.

- ▶ Before starting electrical work:
 - Isolate the mains electrical supply and secure against unintentional reconnection.

- Check for zero potential.
- ▶ Also observe connection diagrams of other system components.

HANDOVER TO THE USER

When handing over, instruct the user how to operate the heating system and inform him about its operating conditions.

- ▶ Explain how to operate the heating system and draw the user's attention to any safety-relevant action.
- ▶ Explain that modifications and repairs must only be carried out by an authorised contractor.
- ▶ Advise the user to have the system serviced annually by a competent, trained engineer.
- ▶ Leave the installation instructions with the completed Benchmark Checklist (or a certificate confirming compliance with IS 813, Eire only) and the operating instructions with the user or at the gas meter.

SAFETY

- ▶ The unit must be installed and connected by professional plumbing and heating engineers only.
- ▶ Only use original Worcester spare parts to replace faulty parts or heating components.
- ▶ Check all connections for leakages prior to starting up the heating system.
- ▶ All screws must be checked and tightened after the unit has been installed.
- ▶ The user must not make any technical changes to the HDU. Otherwise Worcester will not assume liability for any resulting damage.
- ▶ The HDU must only be installed in rooms and locations that meet the legal requirements.
- ▶ The HDU must be serviced by a suitably qualified and trained engineer in line with the service schedule.

RISK OF ELECTRICAL SHOCK

The actuating drive and pump are connected to mains electricity and any contact with live parts can be deadly or can result in serious injury. The following should be observed:

- ▶ Please ensure that the power supply is turned off when working on any electrical components.
- ▶ Only qualified electricians should carry out work on electrical systems.
- ▶ Electrical components must not be touched with wet or damp parts of the body.
- ▶ Electrical cables must not be pulled or any force exerted.

DANGER OF BURNS AND SCALDS

- ▶ Surfaces of individual components, connections and leaking water can be very hot and cause severe burns and scalds.
- ▶ Do not touch hot surfaces.
- ▶ Caution should be taken if any water leaks or is drained from the system and not touched unless the temperature is known.

LEAKAGE

If leaks should be observed:

- ▶ Immediately close all valves.
- ▶ Ensure all leaks are repaired by a suitably qualified professional.



CAUTION: The district heating side of the HDU can be operated with high pressure and temperature systems. Please apply extreme caution and wear the appropriate safety equipment (PPE) when working on suspected leaks.

PACKAGING

The following points should be observed during unpacking:

- The first fix rail can be removed from the end of the carton via a perforated flap so that it can be fitted without having to remove the rest of the appliance and cover from the packaging. This will reduce the risk of damage to the rest of the appliance whilst the system is being commissioned. The remainder of the appliance will remain in the packaging and can be stored safely until needed

- Carefully unpack the unit
- Ensure that all packaging material is removed and the unit is clean from all materials to avoid anything preventing the unit from operating correctly
- Check the delivery immediately upon receipt for completeness and transport damage
- In the event of transport damage, the delivery should only be accepted conditionally
- Do not use damaged components for assembly

2 APPLIANCE INFORMATION

2.1 INTRODUCTION

The Greenstar Heat Distribution Unit (HDU) provides domestic hot water and space heating to properties that are serviced from district heating or central boiler plants. The HDU comprises of two heat exchangers, one for the DHW providing instant hot water at a safe regulated temperature and the second for space heating. The HDU is indirect so the primary heating circuit is hydraulically separated from the property space heating by the second plate heat exchanger. The unit operates only when hot water is required providing a constant temperature and flow of hot water.

MAIN FEATURES

- Provides domestic hot water and space heating to properties
- Hydraulic system separation with two heat exchangers
- Continuous primary heating flow enables a permanent supply when domestic hot water is required
- Priority hot water valve maximises the temperature at the DHW heat exchanger
- Thermostatic temperature control prevents the risk of scalding at the hot tap
- Pressure Temperature Control Valve allows the DHW heat exchanger to operate on demand only
- The constant water temperature in the heat exchanger reduces the danger of lime formation
- Low return temperature in the primary circuit maximises efficiency in the system
- Easy to install with minimal installation space required
- HDU can be supplied without a heat meter and with a heat meter fitted (please refer to separate manual for further details)

FUNCTION

In the stand-by mode the heating water flows from the primary circuit (district heating main) via a bypass with a return temperature limiter. Thus heating water from the primary circuit is immediately available at the heat exchanger. If a hot water tap is opened the pressure temperature control valve senses the difference in pressure and opens, allowing the cold and primary heating water to flow through the heat exchanger. At the same time, a hot water priority valve closes the primary feed to the secondary heat exchanger, thus ensuring maximum temperature is available at the domestic heat exchanger. The cold water is heated up instantly. The temperature of the domestic hot water is controlled by a thermostat. Using a sensor, this thermostat controls the temperature (preset to 50 °C. Please be aware that the actual outlet temperature on the HDU is subject to some fluctuation) of the hot water that exits the heat exchanger and regulates the pressure and temperature controller.

PRESSURE TEMPERATURE CONTROL VALVE

- The diaphragm reacts to changes in pressure when a hot tap is opened
- When the valve detects a tap opening it allows water into then heat exchanger
- This enables water to be heated up only on demand saving energy
- The valve has a priority circuit which isolates the primary flow and maximises all the heat to the heat exchanger
- The valve has a thermostatic element which will isolate the feed into the heat exchanger if the set temperature of the hot water is exceeded.

2.2 APPLIANCE

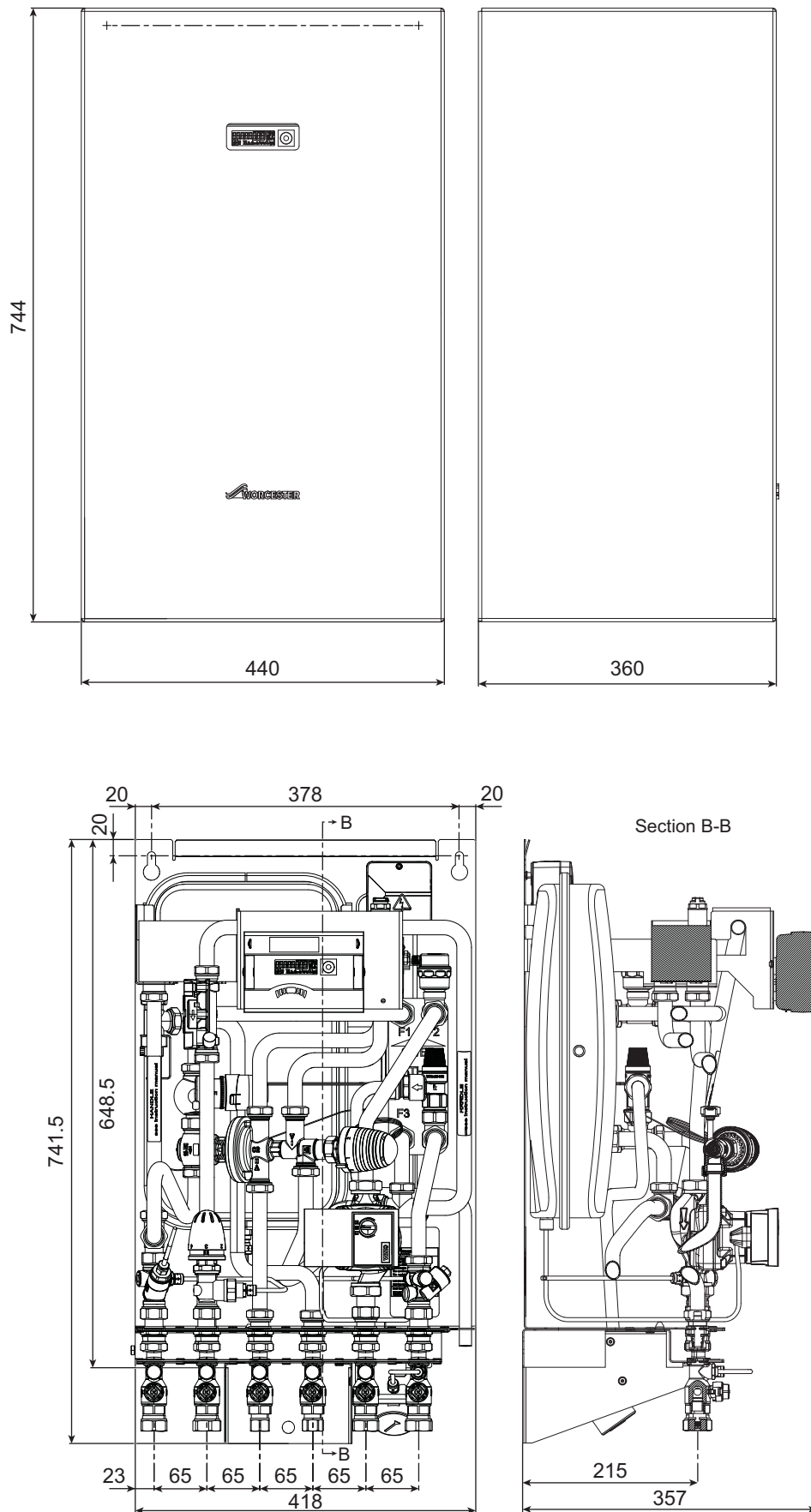


Fig. 1 Dimensions

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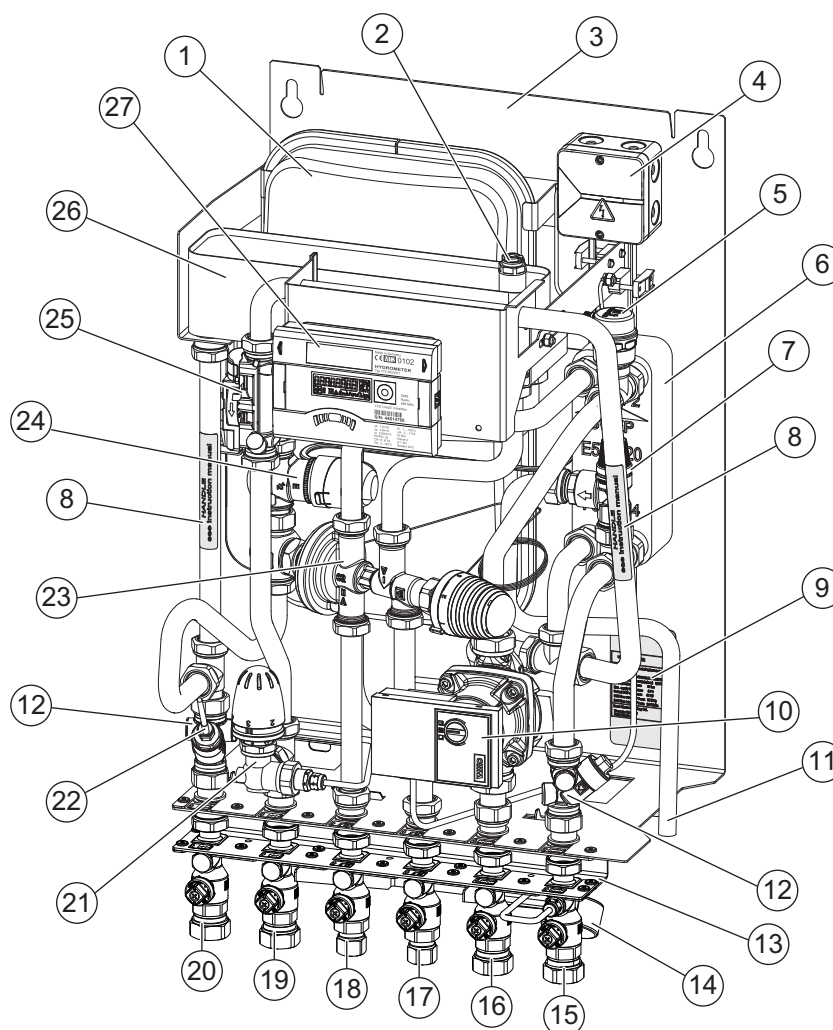
2.3 APPLIANCE INFORMATION

TECHNICAL DATA

Description	Units	
Height	mm	750
Width	mm	440
Depth	mm	360
Total unit weight (lift weight)	kg	37
Packaged unit weight	kg	40
Maximum output to domestic hot water	kW	52
Maximum output to central heating	kW	15
Maximum flow temperature district heating	°C	81
Maximum flow temperature secondary heating	°C	70
Maximum flow temperature DHW	°C	52
District heating flow and return connections	mm	22 (compression)
Secondary heating flow and return connections	mm	22 (compression)
Cold feed and DHW connections	mm	15 (compression)
Pressure release valve connection	mm	15
Wall mounting jig		yes
Maximum working pressure district heating side	bar	10
Pressure release valve setting secondary heating side	bar	3
Maximum working pressure domestic hot water side	bar	10
Primary flow rate at 81/22	l/s	0.16
Primary pressure drop at 81/22	kPa	25
DHW output (50°C) at 81/22	kW	39
DHW flow rate (50°C) at 81/22	l/min	14.5
Primary flow rate at 65/22	l/s	0.17
Primary pressure drop at 65/22	kPa	25
DHW output (43.5°C) at 65/22	kW	32
DHW flow rate (43.5°C) at 65/22	l/min	14.5
Primary flow rate at 55/22	l/s	0.17
Primary pressure drop at 55/22	kPa	25
DHW output (41°C) at 55/22	kW	24
DHW flow rate (41°C) at 55/22	l/min	12
Electrical power supply voltage	AC...V	230
Frequency	Hz	50
Max. power consumption	W	40 (pump)
Appliance protection rating	IP	X4D/54/65
pH value, approx.		7-9
Expansion vessel	l	10
Expansion vessel charge	bar	1 (±20%)

Table 2

2.4 LAYOUT



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Fig. 2 Component layout

1	Expansion vessel	15	Space heating return
2	Manual air vent	16	Space heating flow
3	Support frame	17	DHW outlet
4	Electrical distribution box	18	Cold mains inlet
5	Automatic air vent	19	District heating return
6	Space heating heat exchanger (20 plates)	20	District heating flow
7	Space heating pressure relief valve	21	Bypass valve
8	Handle (lift points)	22	Sensor (heat meter)
9	Data label	23	Pressure temperature control valve
10	Space heating pump	24	Zone valve with actuator
11	Pressure relief valve discharge pipe	25	Flow sensor unit (only if HDU is supplied with heat meter)
12	Strainer	26	DHW heat exchanger (30 plates)
13	Pre-mounting rail	27	Heat meter (only if HDU is supplied with heat meter)
14	Pressure gauge (space heating)		

2.5 FUNCTION SCHEMATIC

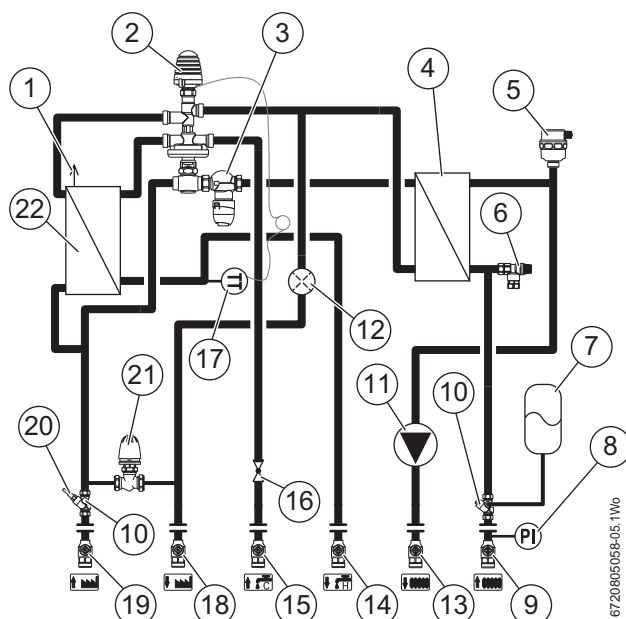


Fig. 3

- [1] Manual air vent
- [2] Pressure temperature control valve
- [3] Zone valve with actuator
- [4] Space heating heat exchanger (20 plate)
- [5] Auto air vent
- [6] Space heating PRV
- [7] Expansion vessel
- [8] Pressure gauge
- [9] Space heating return
- [10] Line strainer
- [11] Space heating pump
- [12] Flow sensor from Heat meter (where specified)
- [13] Space heating flow
- [14] DHW outlet
- [15] Cold mains inlet
- [16] Flow limiter 18 l/min
- [17] Contact sensor (pressure temperature control valve)
- [18] District heating return
- [19] District heating flow
- [20] Sensor (heat meter)
- [21] Bypass valve
- [22] DHW heat exchanger

SYSTEM DESCRIPTION

The system comprises of a DHW heat exchanger [22] and a space heating heat exchanger [4]. A Pressure Temperature control valve [2] controls the operation and temperature of the DHW system and a zone valve [3] controls the operation of the space heating from a temperature controller wired into the HDU. In the stand-by mode the heating primary water is kept at operating temperature via a return temp limiter in a bypass [21]. When a hot tap is opened, the PT controller [2] reacts to the difference in pressure and opens the cold water inlet to the DHW heat exchanger allowing hot water to flow through to the tap. The priority valve in the PT controller [2] ensures that maximum power is used for providing DHW by isolating the space heating when a hot tap is operated. The temperature of the DHW is controlled by the thermostatic head which closes down the PT controller [2] if the set temperature is exceeded. When the zone valve actuator opens [3], the primary heating water flows in to the second heat exchanger [4] and is pumped round the heating system by an integrated circulation pump [11] installed in the heating flow, to ensure constant circulation in the space heating circuit. An expansion vessel [7] is fitted in the space heating circuit to stabilize the pressure in the system and a pressure relief safety valve [6]

is also installed. A heat meter is also installed in the unit to monitor the amount of energy consumed.

2.6 PRE-INSTALLATION

Please ensure that drain cocks are fitted to the relevant pipework prior to the HDU being fitted. Allow for the necessary filling and draining points.

Casing removal

1. Remove the allen screw inside the frame at the back on the left hand side.
2. Pull the bottom casing forward.
3. Lift the cover off the lip at the top of the back plate.

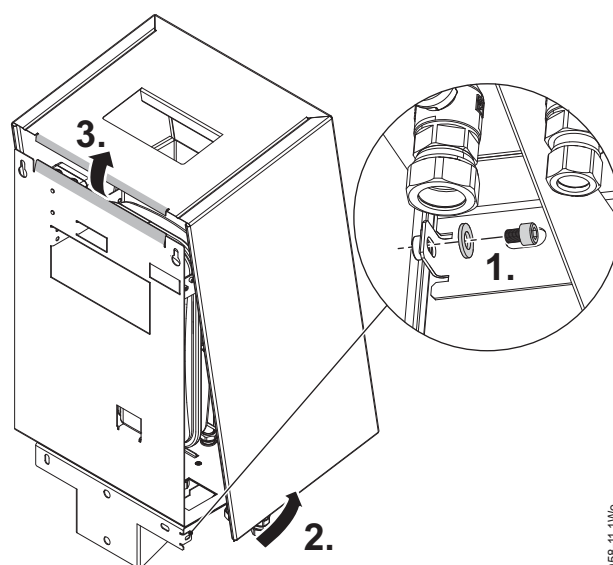


Fig. 4 Casing removal

2.7 INSTALLATION

Installing the pre-mounting rail

► Using the template supplied in the packaging, mark the wall for the hole positions. Ensuring the plate is level.

1. Drill the two outer holes for the pre-mounting rail and the main unit with a suitable drill.

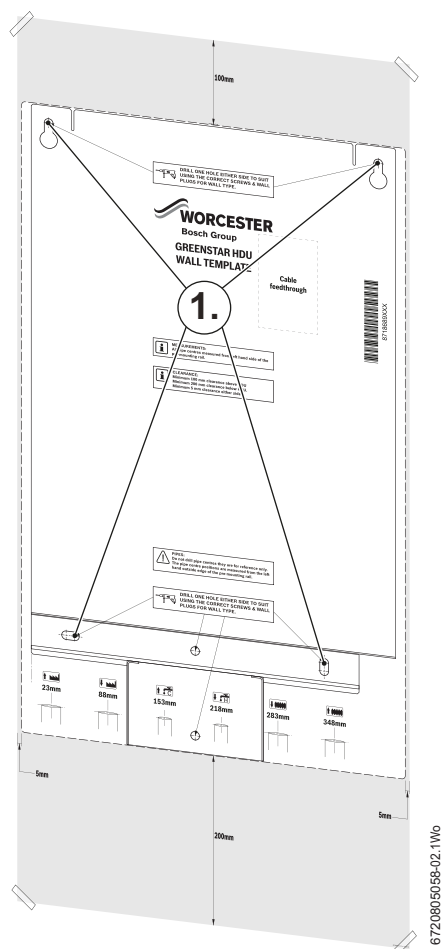


Fig. 5 Template

- Connect the pipework to the isolating valves on the pre-mounting rail and tighten the compression connections.
2. Secure the two outer fixings and level the pre-mounting rail, using fixings (1) suitable for the type of wall.
 3. Drill and secure the lower middle fixing.

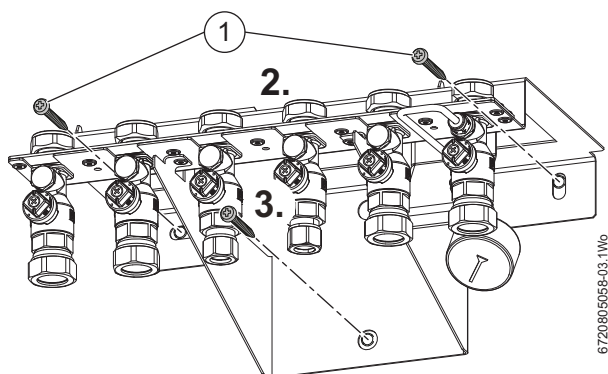


Fig. 6 pre-mounting rail

Please ensure the pre-mounting rail is level before fully securing to the wall.

Installing the main unit

- Ensure the seals are fitted to the isolation valve connections on the pre-mounting rail.
4. Using the handle points [3] lift the unit up to the wall and locate the base onto the three location lugs [4] on the pre-mounting rail while ensuring that the pipe connections fit into the isolation valve connections.

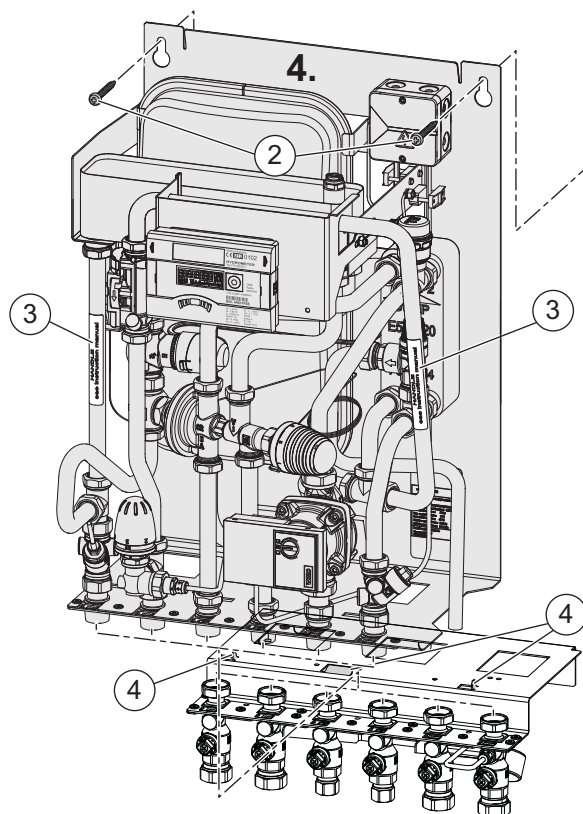


Fig. 7 Installation of main unit

- Loosely fit the wall fixings and isolating valve connections.
- Ensuring the unit is level, fully secure the unit to the wall and tighten the isolating valve connections.
- Connect the pressure release valve discharge pipe and terminate in a suitable location.



NOTICE: The unit will be delivered with the pump cable disconnected inside the terminal box, this is to prevent dry running of the pump. The pump should only be connected once the space heating system has been filled with water.

2.8 ELECTRICAL



CAUTION: Risk of electric shock

- Isolate the mains electrical supply before starting any work and observe all relevant safety precautions.

Connecting the pump cable.

- Connect the pump Live wire (brown) to terminal number 1, the pump Neutral (blue) to the N (neutral) terminal and the pump Earth (green/yellow) to the earth terminal.

Connecting the power supply.

- Connect the supply Live (L) to the L1 terminal, the Neutral (N) to the neutral terminal, the Earth (E) to the earth terminal and the Switch Live (SL) to terminal number 1.

Connecting the Time/temperature controller.

- Connect the Live (L) to the L1 terminal, the Neutral (N) to the neutral terminal and the Switch Live (SL) to terminal number 1.

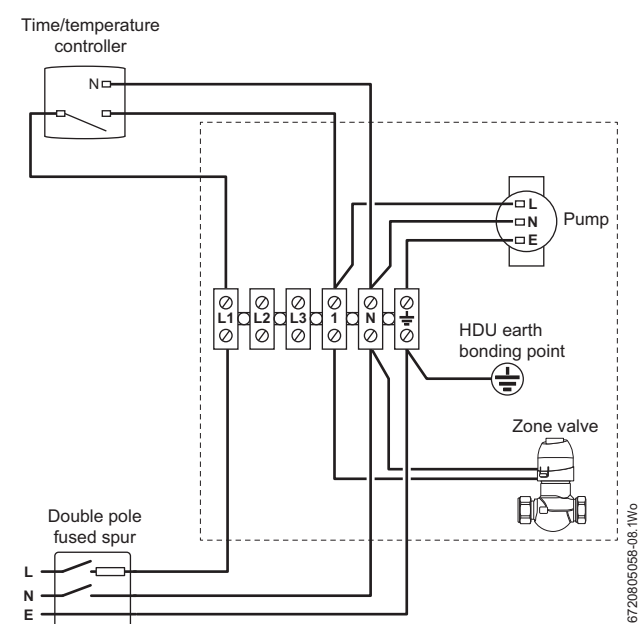


Fig. 8 Electrical connections

2.9 CONNECTING TO THE DISTRICT HEATING MAIN

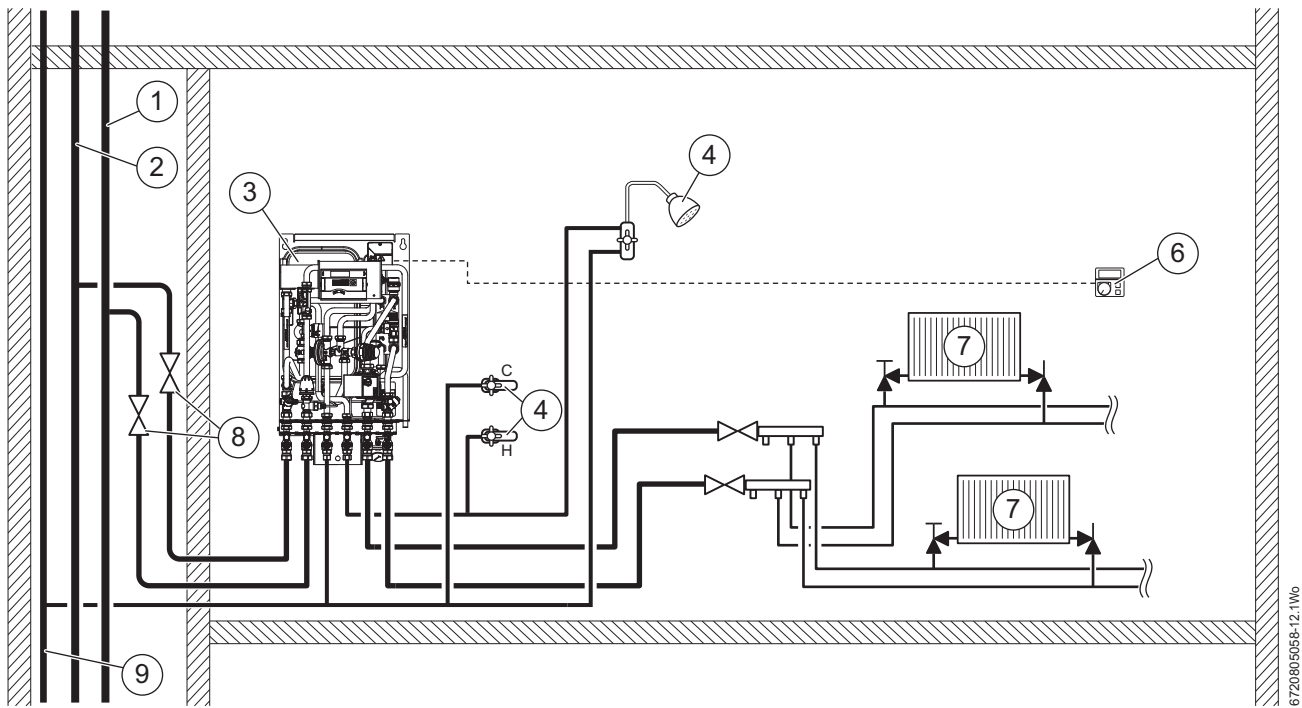


Fig. 9 Example less than 150m2, two zones, single channel time control and individual room thermostats

1	District heating return	6	Space heating time/temperature controller
2	District heating flow	7	Space heating (example radiators)
3	Heat distribution unit	8	District heating isolation valves
4	Domestic outlets	9	Mains cold water supply
5	Space heating single channel timer		

NOTICE: High differential pressures could affect the performance of some components in the HDU, if it is likely that primary differential pressures could rise above 55kPa Differential Pressure Control Valves should be installed in the primary circuits to protect the HDUs

3 COMMISSIONING

CLEANING THE PRIMARY CIRCUIT

The pipework systems connected to the heat distribution unit need to be flushed and treated in accordance with the relevant standards and regulations

FILLING AND VENTING THE UNIT

1. When opening the isolating valves take care not to induce any water hammer.
2. Open the isolating valve on the district heating flow and release any air using the manual air vent.
3. Open the isolating valve on the district heating return and release any air using the manual air vent.
4. Slowly open the isolating valve on the mains cold water inlet.
5. Slowly open the isolating valve on the domestic hot water outlet. Open a hot tap for a couple of minutes. Close the tap and release the air using the manual air vent.
6. Open the space heating flow isolating valve
7. Open the space heating return isolating valve
8. Fill the space heating system until the pressure reaches the required operating pressure. The open the automatic air vent by turning the cap on the side anti-clockwise. Refill the space heating system as the pressure drops. Check for leaks.
9. Connect the pump to the power to circulate the water round the secondary.
10. Ensure that the automatic air vent is open and vent the radiators. Check the pressure and top up the space heating system if required.
11. Repeat this process until there is no more air in the system and the pressure remains stable at operating pressure.

Parameters	Recommended limits for water quality
Temperature	Operates better under 60°C, to reduces the risk of stress corrosion of the stainless steel and pitting corrosion in the copper through the hot water
PH - value	7 - 9
Alkalinity	60 mg/L < [HCO ₃ ⁻] < 300 mg/L
Conductivity	< 500 µS/cm
Hardness	[Ca ²⁺ + Mg ²⁺]/[HCO ₃ ⁻] > 0.5
Chloride	1000 mg/L at 25 °C 300 mg/L at 50 °C 100 mg/L at 80 °C 0 mg/L at T > 100 °C
Sulphate	[SO ₄ ²⁻] < 100 mg/L and [HOC ₃ ⁻]/[SO ₄ ²⁻] > 1
Nitrate	[NO ₃ ⁻] < 100 mg/L
Free chlorine	< 0.5 mg/L

Table 3



NOTICE: The given reference values for the heat exchanger are dependant on the required water quality.

TESTING

1. Check different values on the heat meter, take readings before and after opening the hot tap, assuming the primary is at temperature.
2. Check that the electrical supply connected to a room temperature controller and set it to call for heat.
3. Check that the actuating drive opens the zone valve by watching the top and observing the movement on the head.
4. Action the safety valve by twisting the head anti-clockwise, don't overdo this as you may need to top up the secondary system.

FITTING THE COVER

1. When all the commissioning is completed fit the cover by locating the top of the cover over the lip at the top of the back plate.
2. Lower down into position and check the alignment of the heat meter display in the window (if fitted).
3. To adjust the heat meter display, remove the cover and adjust the position using the 4 screws on the mounting plate if required and replace the cover. A small amount of adjustment can be done through the window when the cover is fitted.
4. Secure the cover with the allen screw inside the frame at the back on the left hand side.

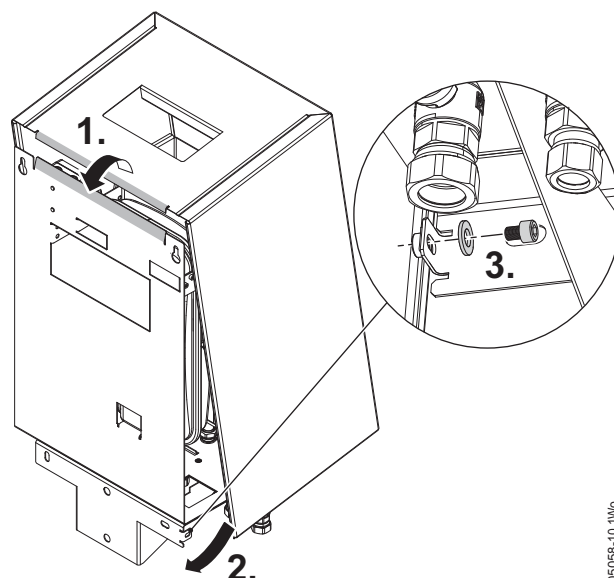


Fig. 10 Fitting the cover

4 SERVICING

4.1 SERVICING



CAUTION: Risk of electric shock

- Isolate the mains electrical supply before starting any work and observe all relevant safety precautions.

DRAINING DOWN THE PRIMARY

1. Close the primary flow and return isolating valves. Open the manual air vent to release the pressure.
2. Open the drain plug in the primary return isolation valve and drain into a bucket.

DRAINING DOWN THE DOMESTIC HOT WATER

- Close the mains cold water inlet isolation valve and open a hot tap.
- Open the drain plug in the mains cold water inlet ball valve and drain into a bucket.



CAUTION: The district heating side of the HDU can be operated with high pressure and temperature systems. Please apply extreme caution and wear the appropriate safety equipment (PPE) when working on suspected leaks.

DRAINING DOWN THE SECONDARY

1. Close the secondary flow and return isolation valves. Ensure the automatic air vent is open.
2. Ensure the safety valve is venting into a suitable container and open the safety valve until the pressure drops to 0. This will be approximately 2.5 - 3 litres.
3. Open the drain plug (1) in the side of the secondary strainer. Drain into a bucket.

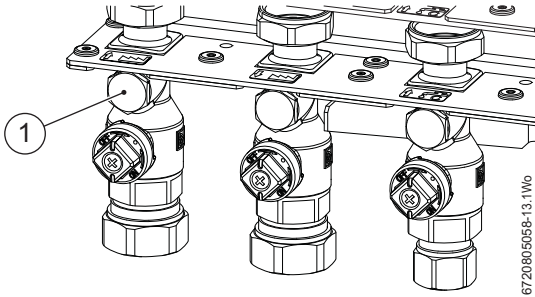


Fig. 11 Drain plug



CAUTION: Do not partially or entirely drain the heating system leaving it without anti-corrosion treatment for a prolonged period of time, as this would make the system more susceptible to corrosion.

COMPONENT SERVICING

In hard water areas limescale can build up in the system. Depending on the hardness of the water, the unit should be de-scaled by a professional every one to two years. If lime-scale build up in the system is excessive, some of the valves could be damaged. These should be replaced immediately to ensure reliable operation of the heating system. Do not clean the unit with scouring or harsh cleaning agents. Wipe it down with a damp cloth which has been rinsed in water with a few drops of mild detergent.

HEAT EXCHANGER CLEANING METHOD

There is a self-cleaning effect in the heat exchanger due to the strong turbulence occurring naturally during service life. If the heat exchanger is subject to extremely hard water and/or high temperatures a coating can still form on the plates. Contaminants or sediments can affect the performance of the heat exchanger. When mineral deposits are formed (lime scale) a suitable decalcification agent will be required to descale the plates. This coating can be removed with a weak acid (5% phosphoric acid or 5% oxalic acid). The cleaning solution manufacturer's recommendations of use should be observed. For good results the heat exchanger should be rinsed both in reverse and in the normal flow direction. After cleaning, the heat exchanger should be rinsed thoroughly with clear water and neutralized with a solution of 1 - 2% sodium hydroxide or sodium bicarbonate (NaHCO_3) to ensure a neutral PH level of 6 - 9 is achieved.

PRESSURE TEMPERATURE VALVE WITH PRIORITY CIRCUIT

Routine servicing – Check all connection seals, check central leakage hole (1) which indicates the integrity of the O rings sealing the domestic side from the heating side, remove thermostatic head, check the insert for leaks and action the insert drive pin.

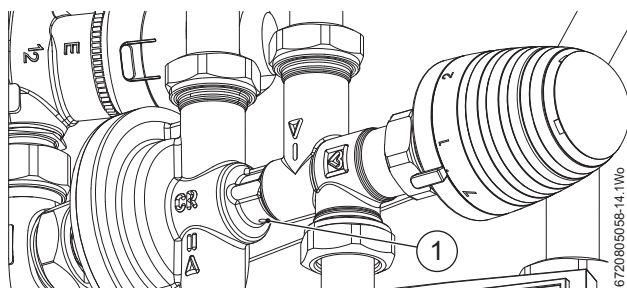


Fig. 12 Priority valve central leakage hole

Component replacement – Remove the thermostatic head, drain both the primary and domestic sides of the unit and undo all 6 connections then replace the valve, refit the connection nuts replacing the seals and refit the thermostatic head.

THERMOSTATIC BYPASS VALVE

Routine servicing – Check all connection seals, remove the head, check the insert for leaks and action the insert drive pin.

ZONE VALVE

Routine servicing – Check all connection seals, remove the actuating drive, check the insert for leaks and action the insert drive pin.

ACTUATING DRIVE

Routine servicing – Check action when electric signal sent (calling for heat)

Component replacement – Isolate electric power and disconnect actuator, remove from valve body, replace and reconnect wiring.

BALL VALVES

Routine servicing – Operate valves regularly and check all connection seals

STRAINER

Routine servicing – Check all connection seals, drain the primary, remove strainer cap and check strainer basket.

THERMOSTATIC HEAD WITH CONTACT SENSOR

Routine servicing – not required

Component replacement – Drain the domestic hot water, bend back the bracket which secures the contact sensor and undo the connection nut and remove the sensor. Remove the thermostatic head and refit the contact sensor bending back the bracket into the position refit the connection nut having replaced the seal.

DOMESTIC WATER HEAT EXCHANGER

Routine servicing – Check all connection seals.

Component replacement – Drain the primary and domestic sides of the unit, open the safety valve to reduce the pressure on the secondary circuit to zero and remove the automatic air vent (12) to gain access to the rear connection nut. Undo all 4 connections and remove the heat exchanger. Replace the heat exchanger, refit the connection nuts replacing the seals and replace the automatic air vent, then refill the secondary system to get the pressure back up to 3 bar.

SPACE HEATING HEAT EXCHANGER

Routine servicing – Check all connection seals.

Component replacement – Drain both the primary and secondary sides of the unit, undo all 4 connections and remove the heat exchanger and replace, refit the connection nuts replacing the seals and refill the secondary system to get the pressure back up to operating pressure.

AUTOMATIC AIR VENT

Routine servicing – not required

Component replacement – Open the safety valve to reduce the pressure on the secondary circuit to zero and unscrew the automatic air vent and replace then refill the secondary system to get the pressure back up to operating pressure.

SAFETY VALVE

Routine servicing – Check all connection seals, action the valve by turning the handle anti-clockwise and releasing.

Component replacement – Drain the secondary side of the unit, undo the vent pipe connection nut and remove keeping the connection intact, undo the safety valve and replace, then refit the copper pipe connection nut. Refill the secondary system to get the pressure back up to operating pressure.

EXPANSION VESSEL

Routine servicing - Check all connection seals, check pressure by closing the secondary isolation valves and venting the safety valve for 3 seconds, if the pressure drops by a small amount, the expansion vessel is holding pressure and is ok. If the pressure drops by a large amount, the expansion vessel is not maintaining pressure and needs replacing.

Component replacement – Drain the secondary side of the unit and undo the capillary nut using two spanners, undo the connection nut and remove the expansion vessel by lifting up to clear the bracket and slide down and out to remove. Replace in the same way in reverse then refit the connection nut and capillary nut. Refill the secondary system to get the pressure back up to operating pressure.

PRESSURE GAUGE

Routine servicing – Check all connection seals, check operation of the needle down to zero and back up when the secondary is being drained

and refilled.

Component replacement – Drain the secondary side of the unit, unscrew the gauge and replace.

SPACE HEATING CIRCULATION PUMP

Routine servicing – Check all connection seals

Component replacement – Isolate the power supply to the pump, drain the space heating side, disconnect the cable from the pump and undo 2 connection nuts, remove the pump and replace then refit the connection nuts, replacing the seals. Refill the secondary system to get the pressure back up to operating pressure.

HEAT METER (WHERE FITTED)

Routine servicing – Check all connection seals

Component replacement – Isolate the power and disconnect the electric cable. Drain the primary side of the unit. Remove the sensor from the strainer cap by removing the securing pin and pulling the sensor out. Unclip the display box from the bracket and undo the 2 connection nuts and remove the meter from the pipework. Replace the meter, refit the connection nuts replacing the seals and clip the display back onto the bracket. Refit the sensor into the strainer cap and replace the securing pin taking care not to push it too far in. Reconnect the electric cable and test the display.

4.2 TROUBLESHOOTING

Problem	Symptom	Troubleshooting
Problems with space heating	Flow temperature is too low	<ul style="list-style-type: none"> • Increase the Flow temperature on the heat source • Check the controls on the buffer vessel
	No flow or too low flow on the space heating circuit	<ul style="list-style-type: none"> • Check the valves settings on the unit • Clean the strainer • Check the settings on the primary heating pump • Check the actuator on the zone valve
	Air in the system	<ul style="list-style-type: none"> • Use the manual air vent • Remove the air from the respective sections of the apartment's heating circuit • Remove the air from the riser • Vent the radiators
	Mixing circuit in the under-floor heating	<ul style="list-style-type: none"> • Check the thermostatic head or the regulation valve • Open or close the bypass on the regulating valves • Check the pump settings • Check the settings on the distributor
Problems with hot water	Long time to get hot water on the taps	<ul style="list-style-type: none"> • Check the bypass circuit • Check the district heating pump
	Pressure temperature controller is leaking	<ul style="list-style-type: none"> • Change the pressure temperature controller
	Pressure temperature controller sticks	<ul style="list-style-type: none"> • Change the pressure temperature controller
	Temperature of the hot water is too low	<ul style="list-style-type: none"> • Increase the flow temperature on the heat source • Check the controls on the buffer vessel • Check the valves settings on the unit • Clean the strainer

Table 4

RECYCLING AND DISPOSAL

The HDU as well as the packaging are mainly made of recyclable raw material.

- The HDU and accessories should be disposed of sensibly and properly and not in household waste.
- The disposal of the packaging is the responsibility of the installer.

4.3 SPARE PARTS

Description	Part number	Description	Part number
PT- controller (priority circuit)	8 736 500 000	Manual air vent	8 736 500 021
Priority circuit valve, integral to PTCV	8 736 500 001	Flat sealing gaskets standard	8 736 500 022
Thermostatic valve, bypass	8 736 500 002	Flat sealing gaskets for PTC 2.0mm	8 736 500 023
Return temperature limiter, bypass	8 736 500 003	Flat sealing gaskets for PTC 3.4mm	8 736 500 024
Zone valve	8 736 500 004	O-ring for pipe	8 736 500 025
Actuating drive (zone valve)	8 736 500 005	Flat sealing gaskets for pump	8 736 500 026
Isolation valve 15mm compression	8 736 500 006	Euro cone flat sealing nipple	8 736 500 027
Isolation valve 22mm compression	8 736 500 007	Special flat sealing nipple	8 736 500 028
Strainer 1 x connection boss	8 736 500 008	Connection nut for safety valve	8 736 500 029
Strainer 2 x connection boss	8 736 500 009	Copper pipe connection for safety valve	8 736 500 030
Thermostatic head with contact sensor	8 736 500 010	Pipework pack, 1 of each pipe in the unit	8 736 500 031
Contact sensor connection sealing nut	8 736 500 011	Complete FFR Assembly	8 736 500 032
Heat exchanger DHW (30 plate)	8 736 500 012	Strainer mesh	8 736 500 033
Heat exchanger space heating (20 plate)	8 736 500 013	Front cover with heat meter hole	8 736 500 034
Automatic air vent	8 736 500 014	Front cover without heat meter hole	8 736 500 035
Safety valve for heating	8 736 500 015	Front cover securing screw	8 736 500 036
Expansion vessel	8 736 500 016	HDU Installation & Instruction manual	8 736 500 037
Pump for heating circuit	8 736 500 017	Heat meter Installation & Instruction manual	8 736 500 038
Heat meter	8 736 500 018	Electrical connection box and connectors	8 736 500 039
Pressure gauge	8 736 500 019	Drilling template	8 736 500 040
Flow limiter 18l/min	8 736 500 020	Bottom Cover (accessory)	8 736 500 041

Table 5

WORCESTER, BOSCH GROUP:

TECHNICAL SUPPORT:	0844 892 3366
APPOINTMENTS:	0844 892 3000
SPARES:	01905 752571
LITERATURE:	0844 892 9800
TRAINING:	01905 752526
SALES:	01905 752640

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