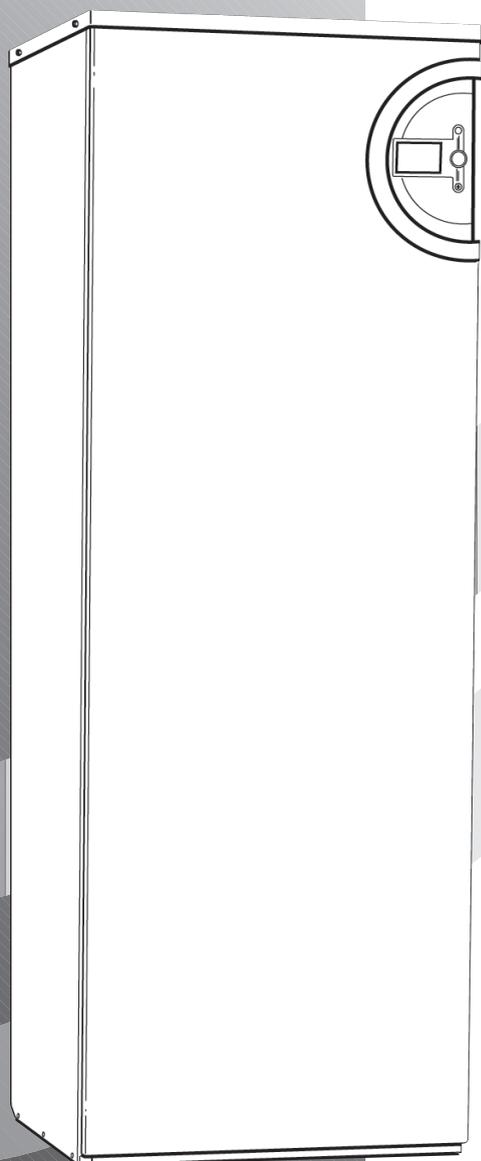


WORCESTER GREENSOURCE

HOT WATER DISTRIBUTION UNIT



GB/IE

USER MANUAL

Please read carefully prior to
installation and user guide

 **WORCESTER**
Bosch Group

benchmark

User Guide
Hot water distribution unit
Worcester, 16.06.08
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Issue: a

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For the user

Important information

The Hot water distribution unit, HWDU, belongs to the latest family of heating products. Working in conjunction with the Worcester Greensource air/water unit, the HWDU produces all your requirements for hot water and heating.

The heat pump system is controlled by a Rego 800 control unit, which is in the HWDU. The control unit controls and monitors the total system using different settings for heating, hot water, other operations and maintenance. The settings are made by the installer and the user via a control panel.

This guide contains a description of HWDU, what it consists of, maintenance, etc. The control unit and settings are described in the Installation guide of the Greensource air/water unit. It is important, as the user, that you read through these instructions carefully.



Note

For a comprehensive understanding please read the Guide for the Greensource heat pump. There the Rego 800 monitoring and control system is fully described.



Note

Only a trained and qualified technician may carry out repairs to this machine. Incorrect repairs can lead to serious risks to the user, and a reduction in savings.

Visits from an authorised Service representative to make corrections or adjustments after such a repair, cannot in such cases be carried out free of charge, not even during the warranty period.

General

The HWDU can only be used in conjunction with the Greensource air/water unit, which forms a complete solution for both heating and hot water. The hot water is provided by the HWDU in a stainless steel tank. The hot water heater has a protective anode that is maintenance free and is suitable for all types of water.

The HWDU is installed indoors and the heat pump is installed outdoors. The heat pump collects energy from outside air. The energy is transferred via heated water to the HWDU for further transfer out into the house's heating system (radiators and/or underfloor coils) and for heating the hot water.

The Rego 800 control unit, in the HWDU, controls and monitors the whole installation and have factory pre set settings for the optimum performance of the heat pump. It contains a control panel with graphic presentation. You change the way the unit operates by increasing/decreasing the heating, obtaining extra hot water etc., using the control panel.

There are a number of sensors in the system to assist adjusting heating and hot water production for different demands. These give the control unit information about for instance the current outdoor temperature and hot water temperature.

We recommend the fitting of an electrical isolation switch between the two unit types.

Hot water distribution unit



Greensource outdoor A/W unit



This is how the HWDU works

The HWDU produces hot water and additional heating

The HWDU contains a tank in tank cylinder. There is an additional electric heater fitted which heats the hot water in the inner tank and the heating water in the outer tank.

The system heats the hot water based on information from a sensor in the hot water heater and the settings in the control unit. The additional electric heater is also used to produce extra high hot water temperature, which is reached via a hot water peak.

Principles in different demand situations

The Greensource heat pump produces heat and there is no hot water requirement:

The Greensource heat pump heats the heating water according to the flow sensor (T1) and the temperature settings in the control unit. The heating water is fed through the HWDU without passing through the hot water cylinder.

The Greensource heat pump produces heat and there is a hot water requirement:

In this case, the hot water sensor (T3) indicates that the hot water needs heating. The heating water from the Greensource heat pump passes through the hot water cylinder's outer tank and heats up the hot water until the hot water requirement is met. While it is doing so, no heat is produced. The switch between heating and hot water production occurs automatically at a certain time interval.

The Greensource heat pump needs additional heat in order to satisfy a heating requirement:

In this case, the additional electric heater heats the heating water in the outer tank of the hot water cylinder. This heating water is fed into the heating system in suitable amounts thereby increasing the flow temperature.

Extra hot water and hot water peaks:

When these requirements must be met, the control unit ensures that hot water is first heated by the compressor together with the additional electric heater, then only by the additional electric heater until demand is met.

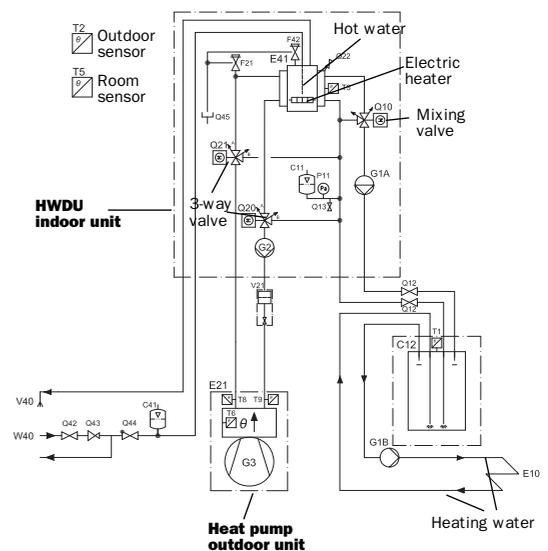
At outdoor temperatures lower than approx -20°C:

In the event of too low an outdoor temperature, the compressor stops and all heating of heating water and hot water occurs via an additional electric heater in the HWDU. The outdoor temperature is displayed via the outdoor sensor (T2)

Summer season:

In this case, there is no heat production and the compressor is idle. When a hot water requirement occurs, the compressor starts and meets the demand. Extra hot water and hot water peaks function as described previously.

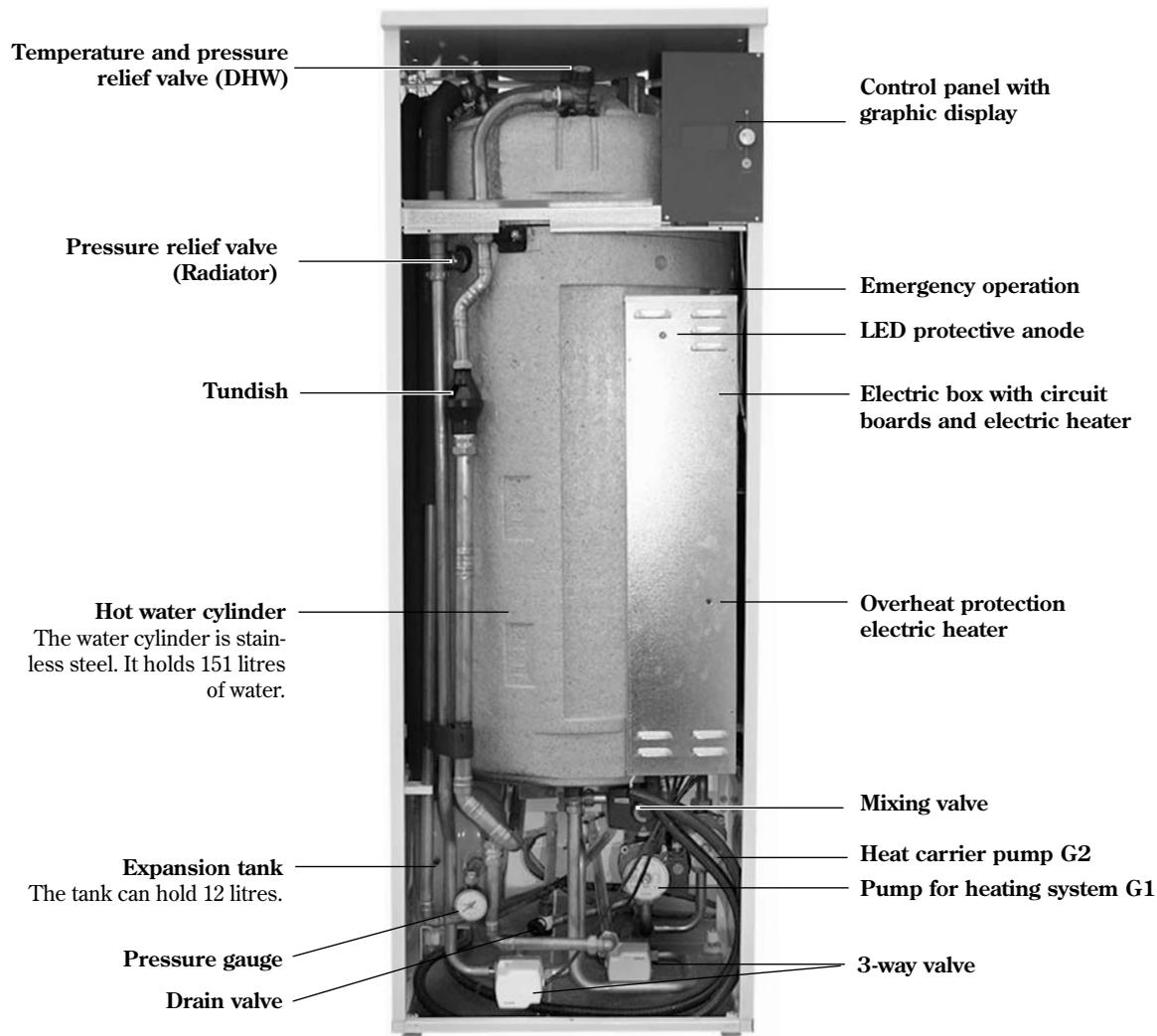
Outline drawing Greensource heat pump and HWDU



Component parts

HWDU

The picture shows the HWDU with the front panel removed. See also *Maintenance*.



Connecting area

The necessary connections of water for heating, hot water, as well as inlet control group and outlet to/from the Greensource heat pump are made here. In addition, there are 3-way valves, mixing valves etc.

Maintenance

Check the pressure gauge

(Twice a year)

The pressure gauge in the lower section of the HWDU must be checked twice a year. This is particularly important during autumn when the heating season starts. The pressure gauge should be between 0.5 – 1.5 bar. If the pressure is lower than 0.5 bar, fill with water up to around 1.0 bar. The filling link is fitted externally to the appliance.

Check the temperature and pressure relief valve

The temperature and pressure relief valve must be inspected annually by a qualified unvented certified installer

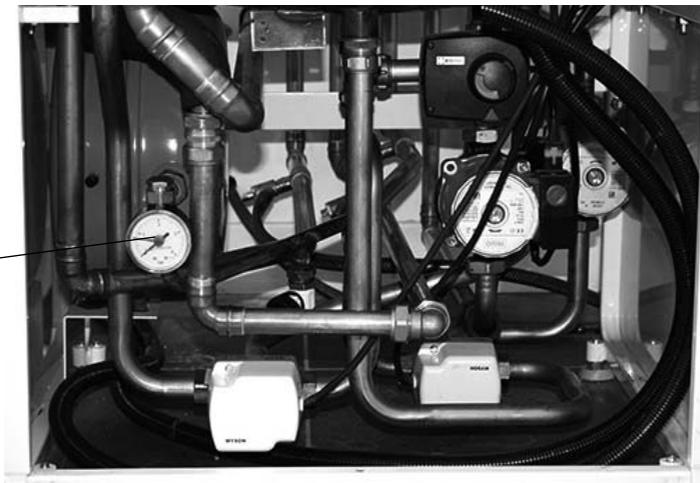
HWDU top area

Temperature and
pressure relief valve



HWDU connection area

Pressure
gauge



What to do if a fault occurs

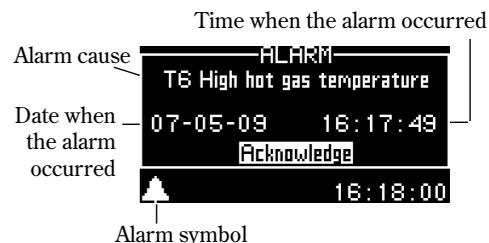
The control unit has an advanced monitoring system that gives alarms if anything unforeseen happens in the system. Most alarms correct themselves. There is never a risk of affecting something when you reset an alarm once or twice. In the event of recurring alarms, contact your installer.

This is described further in the Greensource heat pump guide and also describes what actions you can take.

Example of an alarm:

When an alarm is triggered, an alarm window is displayed and a warning signal sounds. The alarm window displays the alarm causes and the time and date that the alarm occurred.

When you press the menu dial, *Acknowledge* is marked, the alarm symbol goes out in the menu window and in the alarm log and the warning signal is muted. The heat pump starts again within 15 minutes if heating is required. If the fault has not been rectified the LED will remain lit and the status LED will stop flashing red and will light red continuously. Should several alarms have occurred on the heat pump, view the alarm log where all alarms are counted. For active alarms, the alarm symbol lights.



Note

If you deactivated the alarm buzzer under Advanced *no warning signal is heard*.

Protective anode

At the top of the hot water cylinder, under the insulation, there is an electronic protective anode. Its purpose is to prevent corrosion. The cylinder must be filled with water for the anode to work. There is a LED in the electric box that shows a red or a green light. If green, the protective anode is operating and working normally.

Should large amounts of hot water be drawn off (when filling a bath for instance) the diode LED may show a red light for a short time even though there is no fault. If the lamp shows red for more than 10 hours, the anode is faulty and a service engineer must be called. You can wait until the next working day if the fault occurs on a holiday.

Overheat protection additional electric heater

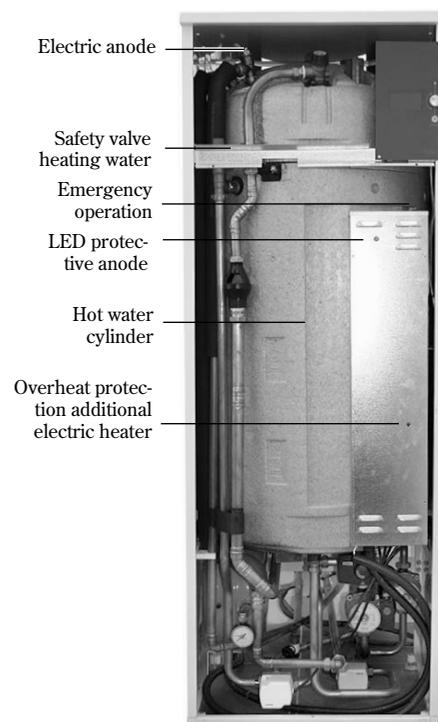
The button for resetting the additional electric heater overheat protection is on the front of the electric box. This is a protection device that should normally not trip. If, however, it does trip, reset it by pressing in the button firmly. If the overheat protection device trips frequently, call a service engineer to establish the cause.

Emergency operation

There is a switch on the top of the electric box that shows a green light in normal operation. If a fault occurs in the control unit and heat production stops, emergency operation can be activated manually using the switch, which then goes out. Emergency operation can also be activated automatically (and then the switch continues to be lit).

The additional electric heater takes over the heat production during emergency operation. Heating can therefore be obtained until the installer or authorised service technician has remedied the fault.

This function must not be confused with Alarm mode, which means that the compressor stops, for safety, due to an active alarm. Heat production is still controlled by the control unit.



Technical information

Technical information

Greensource Hot water distribution unit		
Control unit		Rego 800
Output electric element	kW	4,5
Output circulation pump	kW	0,2
Electrical supply		230V 1N~
Max. power consumption	kW	4,7
Fuse size ¹⁾	AT	25
Max working pressure	bar (MPa)	2.5 (0.25)
DHW volume	l	151
CH Buffer volume	l	55
Expansion tank	l	12
Overheat protection	°C	90
Min. flow heating system	l/s	0
Pump for heating system G1	Wilco Star RS 25/6-3	
Heat carrier pump G2	Wilco Star RS 25/6-3	
Dimensions (WxDxH) ²⁾	mm	600/615/1660
Weight, excluding water	kg	122
Weight, including water	kg	347

¹⁾ aM type fuse, D characteristic MCB. Both units require a means of electrical isolation.

²⁾ Dimensions excl. feet, supplied min 20 mm - max 30 mm depending on adjustment.

Sensor table

The table shows all sensor resistance at different temperatures.

Temperature (°C)	kΩ
-40	154.300
-35	111.700
-30	81.700
-25	60.400
-20	45.100
-15	33.950
-10	25.800
-5	19.770
0	15.280
5	11.900
10	9.330
15	7.370
20	5.870
25	4.700
30	3.790
35	3.070
40	2.510
45	2.055
50	1.696
55	1.405
60	1.170
65	0.980
70	0.824
75	0.696
80	0.590
85	0.503
90	0.430

Cylinder reheat times, Inner cylinder 151 Litres of DHW

Full volume heat-up from 15°C to 55°C with a primary flow temperature of 60°C takes 2 hours and 15 minutes

Full volume re-heat to 55°C after 70% of the cylinders contents were drawn off takes 1 hour and 50 minutes

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EXCELLENCE COMES AS STANDARD

Worcester, Bosch Group

Cotswold Way, Warndon, Worcester WR4 9SW.

Tel. 01905 754624 Fax. 01905 754619

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Bosch Thermotechnology Ltd.

www.worcester-bosch.co.uk

CONTACT INFORMATION

WORCESTER, BOSCH GROUP:

TECHNICAL: 08705 266241

SERVICE: 0845 7 256206

SPARES: 01905 752571

LITERATURE: 01905 752556

TRAINING: 01905 752526

SALES: 01905 752640

WEBSITE: www.worcester-bosch.co.uk

