

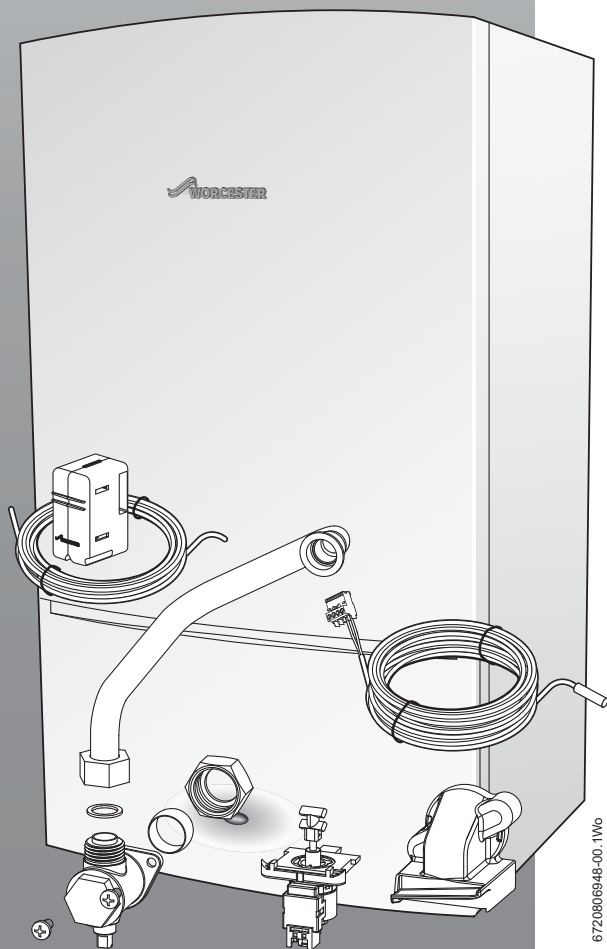
Installation instructions

Wall hung RSF gas fired condensing boiler

Greenstar i System^{ErP} Optional Integral Diverter Valve

For sealed central heating systems and indirect mains fed domestic hot water

Read these instructions in conjunction with the appliance Installation, Commissioning and Servicing Instruction manual.



These appliances are for use with:

Natural Gas or L.P.G.

(Cat. II 2H 3P type C13, C33 & C53)

	Model	GC Number
Natural Gas	Greenstar 9i System ^{ErP}	41-406-21
	Greenstar 12i System ^{ErP}	41-406-23
	Greenstar 15i System ^{ErP}	41-406-25
	Greenstar 18i System ^{ErP}	41-406-27
	Greenstar 21i System ^{ErP}	41-406-29
	Greenstar 24i System ^{ErP}	41-406-31
L.P.G.	Greenstar 9i System ^{ErP}	41-406-22
	Greenstar 12i System ^{ErP}	41-406-24
	Greenstar 15i System ^{ErP}	41-406-26
	Greenstar 18i System ^{ErP}	41-406-28
	Greenstar 21i System ^{ErP}	41-406-30
	Greenstar 24i System ^{ErP}	41-406-32


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

- **NOTICE** 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.
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Additional symbols

Symbol	Meaning
1.	a numbered step in an action sequence
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents
①	a reference number to identify or refer to a part or item
.	a list entry
-	a list entry (second level)

Table 1 Symbols

Examples of additional symbols used

A numbered step in an action sequence

A sequence of numbered steps or actions carried out in a specific order to complete a task.

1. First action
2. Second action
3. Third action
etc.

A step in an action sequence

A sequence of defined actions or steps carried out in order to complete a task.

- ▶ Action
- ▶ Next action
- ▶ etc

A reference to a related part in the document or to other related documents.

To refer the reader to a specific figure/table/section within the manual.

→ e.g. figure 1.

A reference number to identify or refer to a part or item.

In a related figure, items or parts identified by a sequential number.

List entries, first and second levels

- A single component/item
- A component/list, made up of multiple parts/items.
 - Sub component or sublist of main component/list.
 - etc.

Symbols used in this manual








	Domestic Hot Water
	Central Heating
	Central Heating Flow
	Central Heating Return
	Hot Water Storage Cylinder
	Electrical Supply
	Gas Supply

Table 2 Commonly used symbols

∅	Diameter
NG	Natural Gas
LPG	Liquid Petroleum Gas
CH	Central Heating
DHW	Domestic Hot Water
DCW	Domestic Cold Water
DWTA	Domestic Water Treatment Association
PRV	Pressure Relief Valve
NTC	Negative Temperature Coefficient (sensor)
IP	Ingress Protection
RCD	Residual Current Device
TRV	Thermostatic Radiator Valve
ECV	Emergency Control Valve
WRAS	Water Regulations Advisory Scheme
SEDBUK	Seasonal Efficiency of Domestic Boilers in the United Kingdom

Table 3 Abbreviations use in this manual

1.2 Safety precautions

Please read these instructions in conjunction with the appliance Installation, Commissioning and Servicing Instructions carefully before starting installation.

- ▶ Observe all the safety precautions described in the Installation, Commissioning and Servicing Instructions for the Greenstar i System range appliances.

2 General Information

- ▶ These instructions are additional information for the fitting and operation of the optional integral diverter valve and must be used in conjunction with the Installation, Commissioning and Service manual.
- ▶ Ensure that the integral diverter valve kit Instructions along with the User Guide and Installation, Commissioning and Service manual, with the Benchmark checklist and service record, is left with the appliance or homeowner.

2.1 Standard package

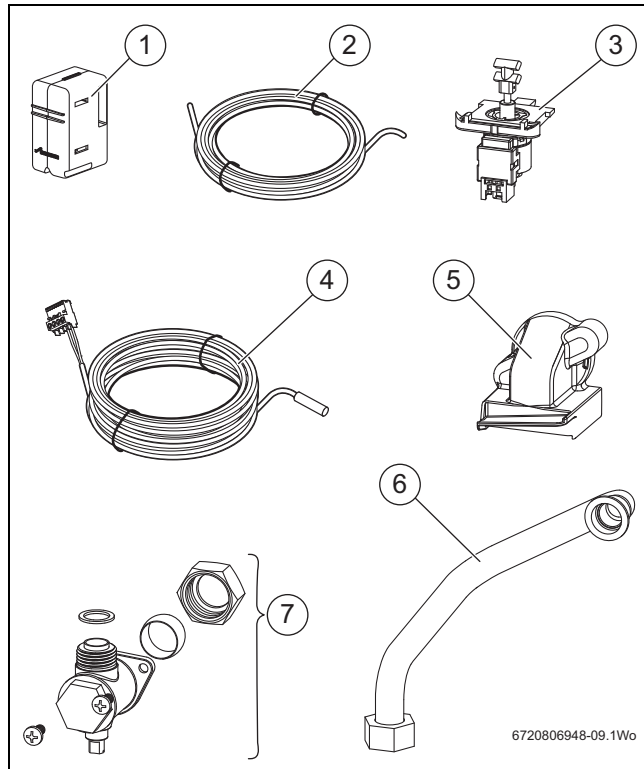


Fig. 1 Standard package

- [1] Sensor housing
- [2] Wire strap
- [3] Diverter valve motor
- [4] Cylinder sensor
- [5] Protective cover
- [6] Copper return pipe
- [7] Service valve
 - Brass service valve
 - 15mm Compression nut
 - 15mm Olive
 - Service valve screws (2)
 - Fibre washer

2.2 Controls accessories

2.2.1 Plug-in programmer/timers

The programmers/timers listed can be used with the optional integral diverter valve kit.

Part number	Integral controls option description
7 716 192 038	DT20 <ul style="list-style-type: none"> • Facia mounted twin channel digital timer.
7 716 192 054	DT20RF digital RF thermostat with twin channel programmer <ul style="list-style-type: none"> • Plug-in receiver & twin channel programmer with radio frequency room thermostat transmitter.
7 716 192 052	DT10RF digistat <ul style="list-style-type: none"> • Plug-in receiver & hot water programmer with radio frequency programmable room thermostat.
7 716 192 053	DT10RF optimiser <ul style="list-style-type: none"> • Plug-in receiver & hot water programmer with radio frequency optimum start programmable room thermostat.
7 716 192 065	FR10 intelligent room thermostat <ul style="list-style-type: none"> • EMS wired, wall mounted.
7 716 192 066	FR110 programmable room thermostat <ul style="list-style-type: none"> • EMS wired, wall mounted.
7 716 192 067	FW100 weather compensation controller <ul style="list-style-type: none"> • Facia mounted or EMS wired within wall mounting socket supplied, with outdoor sensor.
7 733 600 001	Comfort I RF <ul style="list-style-type: none"> • Facia mounted receiver with twin channel programmer and a radio frequency room thermostat transmitter.
7 733 600 002	Comfort II RF <ul style="list-style-type: none"> • Plug-in receiver with hot water programmer and a radio frequency programmable room thermostat.
7 733 600 003	Comfort <ul style="list-style-type: none"> • Facia mounted Digital timer (optional accessory allows wall mounting).
7 733 600 039	Comfort wall plate kit.
7 738 110 058	Sense I intelligent room thermostat <ul style="list-style-type: none"> • EMS wired, wall mounted.
7 738 111 064	Sense II programmable room thermostat <ul style="list-style-type: none"> • EMS wired, wall mounted.
7 716 192 072	Worcester Wave (thermostat) <ul style="list-style-type: none"> • Remote room thermostat, wall mounted.

Table 4

Basic weather compensation sensor

Outdoor weather sensor (to activate on-board simple Weather Compensation).

Part number	Description
7 716 192 764	Outdoor weather sensor

Table 5 Control accessories



The outdoor weather sensor is not required with the FR10, FR110, Comfort I RF, Comfort II RF and Worcester Wave.

2.2.2 DHW temperature control



*DHW temperature control

The optional integral diverter valve kit with cylinder sensor is required to enable the hot the hot water temperature control to be used.

- ▶ the accessories that can be fitted when the integral diverter valve is fitted.
- ▶ with which accessory the DHW control is exclusively responsible for the stored DHW temperature.

Accessory	DHW control exclusively responsible	
	Integral diverter valve	External diverter valve
DT10 RF Digistat	YES	N/A
DT10 RF Optimiser	YES	N/A
DT20	YES	N/A
DT20 RF	YES	N/A
FR110	NO	N/A
FW100	NO	N/A
Comfort I RF	YES	N/A
Comfort II RF	YES	N/A
Comfort	YES	N/A
Sense I	YES	N/A
Sense II	NO	N/A
Worcester Wave	YES	N/A

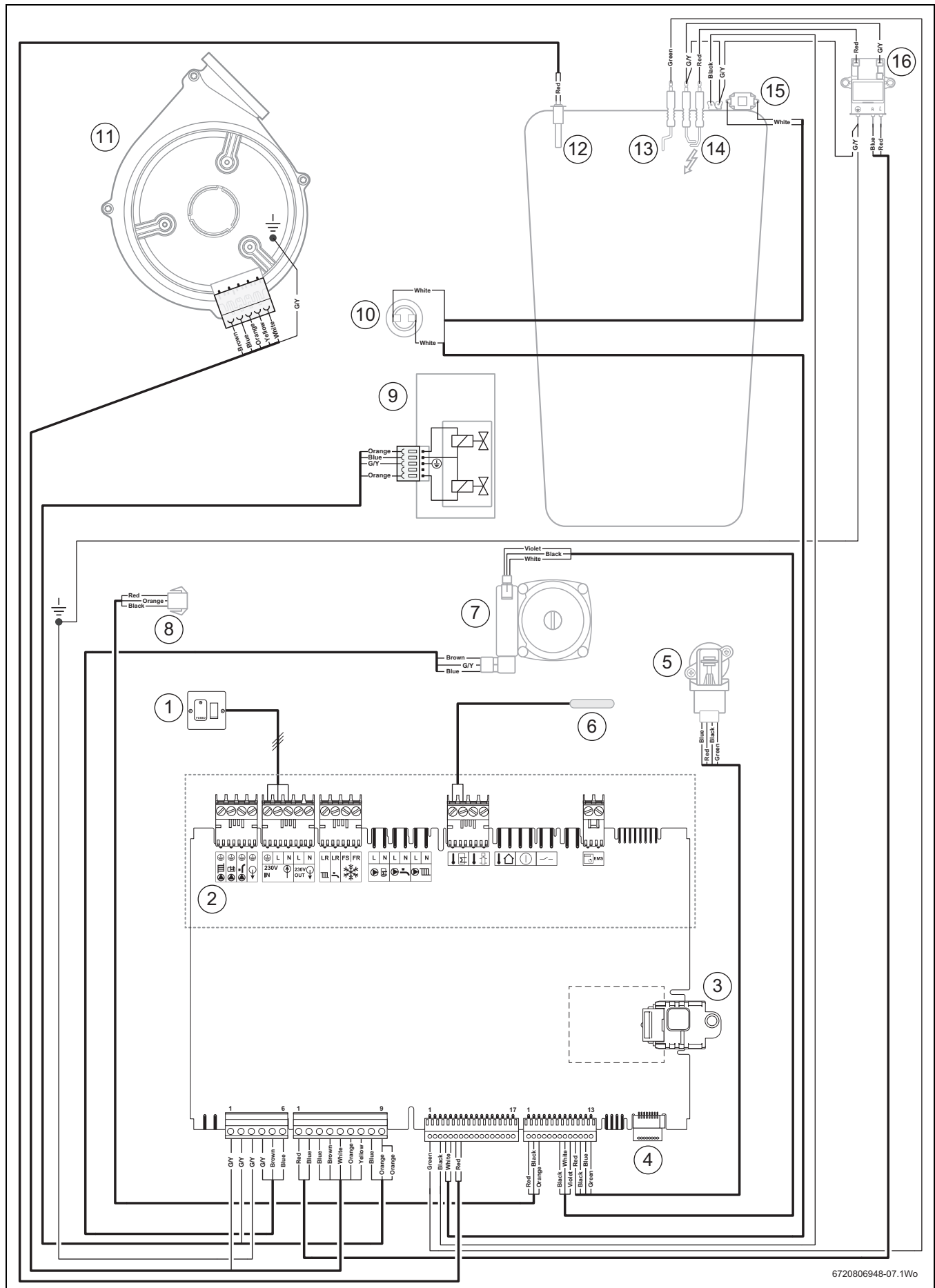
Table 6



The FR110, FW100 and Sense II provide an additional level of control over the DHW set point temperature, allowing the DHW set point temperature to be adjusted at these controls and not only via the DHW temperature adjustment control on the appliances's facia. With these controls, the appliance facia's temperature adjustment control, becomes the maximum temperature limiter. If this is set too low, the DHW set point temperature on the control cannot be achieved.

Worcester facia plug-in mechanical timers cannot be used with this appliance.

2.2.3 Electrical diagram



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Fig. 2 Electrical diagram

Legend to figure 3:

- [1] Mains supply
- [2] Electrical connections
- [3] HCM
- [4] Ribbon cable to display screen
- [5] Diverter valve
- [6] Cylinder temperature sensor
- [7] Circulating pump
- [8] NOT USED
- [9] Gas valve
- [10] Flue overheat thermostat
- [11] Fan
- [12] Flow temperature sensor (NTC)
- [13] Flame sense electrode
- [14] Spark electrodes
- [15] Overheat thermostat
- [16] Spark generator










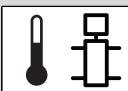




Connections/ symbol	Function
	Earth connections for: <ul style="list-style-type: none"> • CH circulation pump • DHW charge pump • DHW circulation pump • 230V external controls
	230V supply to the appliance <ul style="list-style-type: none"> • Earth input • Live input • Neutral input
	230V feed to external controls <ul style="list-style-type: none"> • Live output • Neutral output
	Switch live (Live Return) to appliance <ul style="list-style-type: none"> • CH demand input • DHW demand input
	External frost thermostat <ul style="list-style-type: none"> • FS output (Frost thermostat supply) • FR input (Frost thermostat return)
	DHW charge pump (NOT USED)
	DHW circulation pump (NOT USED)
	CH circulation pump (NOT USED)
	Cylinder sensor <ul style="list-style-type: none"> • Cylinder sensor from integral diverter valve kit
	Low Loss Header sensor (NOT USED)
	Outdoor weather compensation sensor (used when accessory outdoor sensor is connected)
	External cut off switch (NOT USED)
	Low voltage switch (NOT USED)
	External control system with EMS bus control (connection for Worcester intelligent wall mounted controls)


Table 7 Electrical connections

3 Pre-installation

3.1 General layout


This appliance is designed to operate on a sealed system only. The appliance will require a second return pipe from the water cylinder to the wall mounting frame and terminate in 15mm copper pipe. The following system layouts show a simplified example of the pipe configuration to the appliance.

3.1.1 System layout overview



NOTICE: Drain point

- ▶ A drain cock should be fitted at the lowest point(s) of the heating circuit and beneath the appliance.



Pump overrun function:

- ▶ At the end of a demand the integral diverter valve will move to the CH position if not already in that position and the pump will run for 3 minutes to dissipate the heat.

General layout

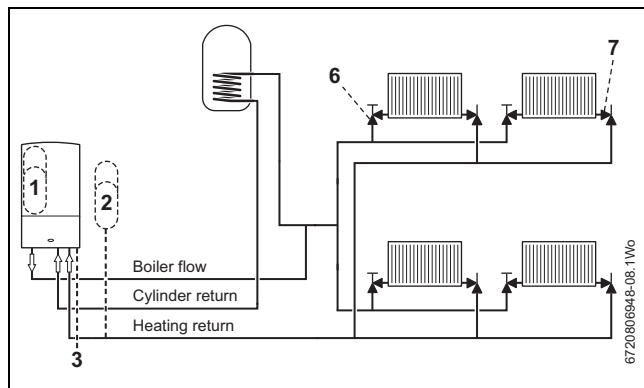



Fig. 3 General pipe layout

Unvented cylinders



In all cases the cylinder manufacturer must be contacted for confirmation their product is suitable for the installation layout shown in figure 3.

Although the accepted common practice of a 2-port motorised valve installed in the primary flow pipe to the cylinder and wired to the dual-thermostat supplied with the cylinder. It is possible to use the integral diverter valve kit and not need the 2-port motorised valve to cut the flow of heat to the cylinder to comply with Building Regulation Part G3.

- The integral diverter valve kit cylinder sensor must be used.
- The general layout (figure 3) can be used for unvented cylinder by utilising the high limit thermal cut out of the cylinder dual-thermostat to interrupt the permanent live to the appliance, preventing any heat being produced from the appliance. Wiring example → section 4.2.6, page 18.

General layout with unvented cylinder & cylinder safety valve

If required by the cylinder manufacture to fit/use the cylinder safety valve then this can also be carried out (figure 4) with the integral diverter valve kit.

- The cylinder safety valve and dual-thermostat (control thermostat and high limit thermal cut out) are wired to interrupt the permanent live to the appliance, preventing any heat being produced from the appliance. Wiring example → section 4.2.7, page 19.

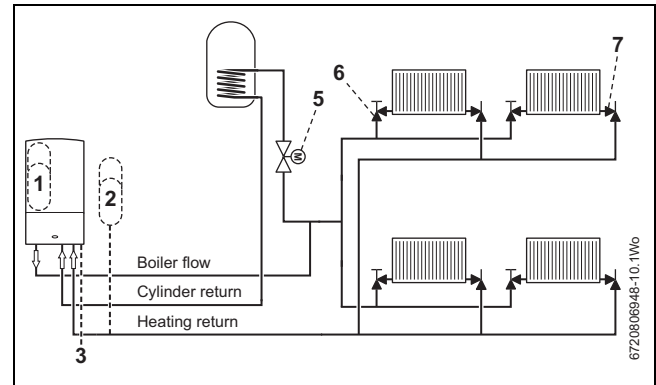


Fig. 4 General pipe layout (unvented cylinder & cylinder safety valve)

1	Appliance expansion vessel - CH
2	Extra expansion vessel - CH return
3	Pressure relief discharge
4	Bypass
5	Cylinder safety valve
6	Radiator valve (flow)
7	Lock shield valve (return)

Table 8 Key to figures 3 & 4

3.2 Plumbing manifold

3.2.1 Connections



Further guidance on pipe routing can be found printed on the appliance template (supplied with the appliance).

- For further ease of fitting, an optional Vertical Pre-piping Assembly kit is available, comprising four pre-formed copper water pipes. Part number: 7 716 192 733.

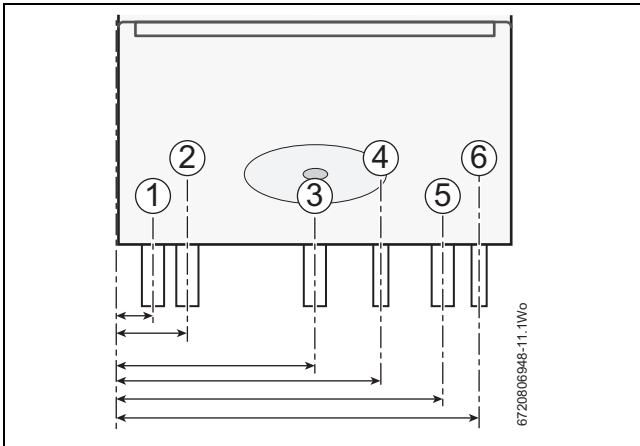


Fig. 5 Pipe dimensions

#	Function	From left case edge	Diameter of pipe
1	Condensate	38mm	22mm rubber push fit connector
2	Flow	70mm	22mm compression fitting
3	Gas	200mm	22mm compression fitting
4	Cylinder return	265mm	15mm compression fitting
5	Heating Return	330mm	22mm compression fitting
6	Pressure Relief Valve	364mm	15mm (fittings not supplied)

Table 9 Key to figure 5

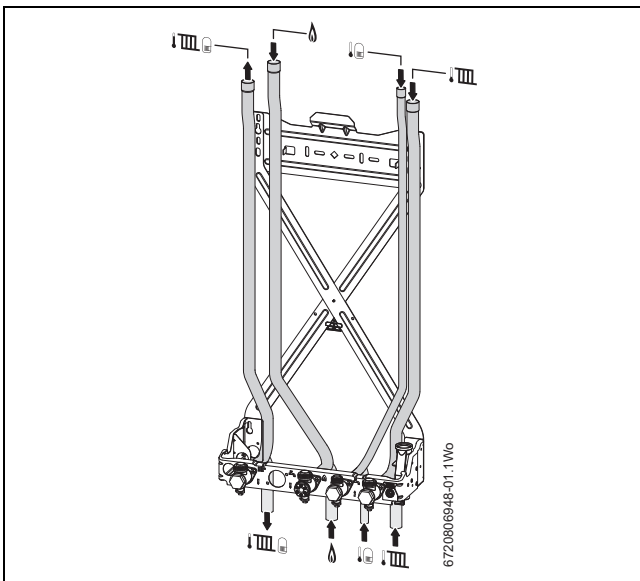


Fig. 6 Pipes within wall frame example

3.2.2 Diverter valve kit considerations

The optional integral diverter valve kit involves fitting the following:

- ▶ Cylinder return service valve, for the connection to the cylinder return pipework, to the plumbing manifold.
- ▶ An extra internal pipe attached to the hydraulic manifold for cylinder return.
- ▶ Diverter valve motor and electrical connector.
- ▶ Hot water cylinder sensor, lead, housing and retaining strap.

3.2.3 Appliance Installation and Commissioning

When fitting the optional integral diverter valve kit, please refer to the Greenstar i System carton for unpacking the appliance and the Installation, Commissioning and Service Instructions for:

- Appliance and Technical information
- Condensate and flue options
- Appliance location and clearances
- Pre-installation
- Installation
- Commissioning

3.2.4 Fitting cylinder return service valve

Before hanging the appliance on the wall frame, fit the cylinder service valve, (→ figure 7).

- ▶ Fit the cylinder service valve using the screws provided.

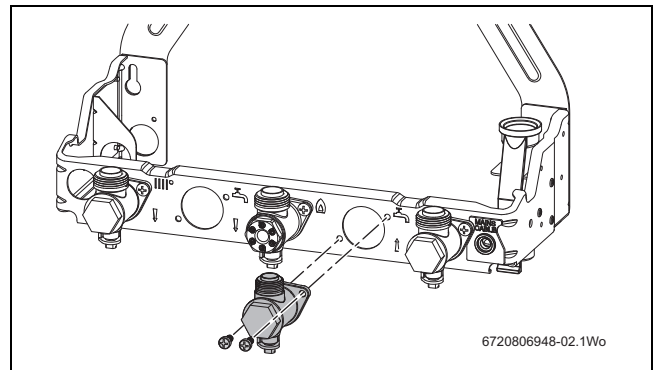



Fig. 7 Fitting cylinder service valve

4 Installation

4.1 Before hanging the appliance



NOTICE: Internal cylinder return pipe
If the internal cylinder return pipe is not fitted before the appliance is hung on the wall mounting frame the appliance will have to be removed from the wall mounting frame.

- ▶ The internal cylinder return pipe must be fitted before the boiler is hung on the wall mounting frame.

4.1.1 Front panel removal

- ▶ Removing outer case
 - Undo and remove the two outer screws [1] securing the appliance casing to release the bottom of the front panel.
 - Lift front panel [2] off the two locating lugs [3] on the top of the appliance.

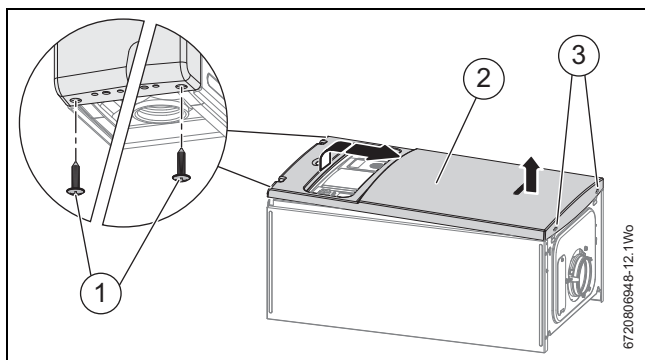


Fig. 8 Remove front panel

4.1.2 Fitting internal cylinder return pipe

Use the packaging as protection, turn the appliance on its left hand side to enable fitting of the internal cylinder return pipe.

Refer to figure 9, hydraulic block shown in isolation for clarity.

- ▶ Loosen the two retaining screws [1] to free the back clamping plate on the hydraulic block.
- ▶ Remove the brass bung [4] from the hydraulic block by sliding it free from the flange [6] on the clamping plate. Make sure that the other brass bung on the opposite side is retained in place.
- ▶ Feed the cylinder service valve connection end [3] of the pipe over the by internal bypass pipe [2].
- ▶ Before fitting the pipe end [5], check that the seal is in position on the plastic moulding. Slide the pipe end [5] under the flange [6] on the hydraulic block clamping plate.

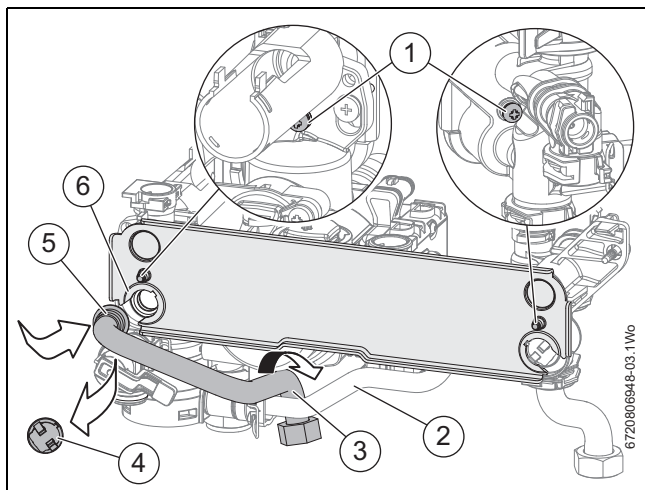


Fig. 9 Fitting internal pipe

Refer to figure 10, hydraulic block shown in isolation for clarity.

- ▶ Ensure that the pipe [7] is located correctly in the flange.
- ▶ Secure the clamping plate by re-tightening the two screws [8]

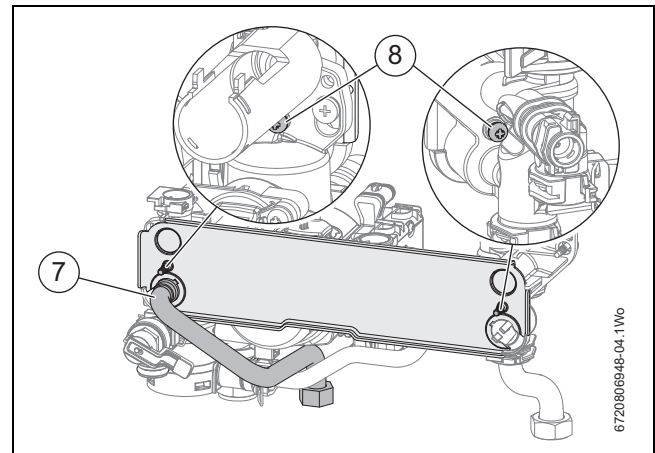


Fig. 10 Securing internal pipe

4.1.3 Preparing the wall frame service valves

- ▶ Fit sealing washers to service valves before hanging appliance.

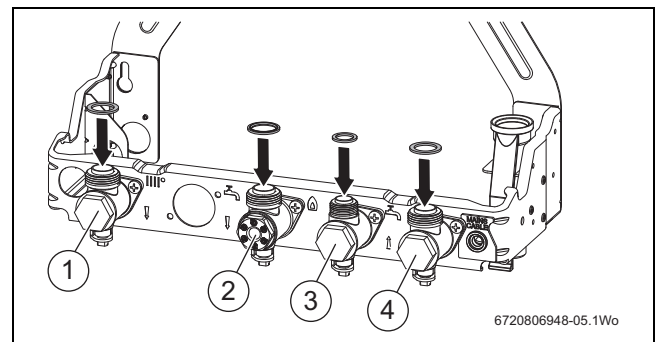



Fig. 11 Sealing washers


- [1] CH flow (22mm)
- [2] Gas inlet (22mm bounded washer)
Bounded washer supplied is for the gas connection only
- [3] Cylinder return (15mm)
- [4] CH return (22mm)

4.1.4 Hanging the appliance




NOTICE: Before hanging the appliance onto the wall mounting frame ensure that the pressure relief valve connection is in the DOWN position, (→ appliance Installation, Commissioning and Service Instructions)

- ▶ This is located on the right hand side of the wall frame at the rear.
- ▶ Apply a smear of silicone lubricant to the seal to ease connection later.



CAUTION: Hanging the appliance

- ▶ Remove the plastic strip fitted to pipes before hanging the appliance.



If required, the expansion vessel can be removed to reduce the lift weight during hanging the appliance. Details of expansion vessel removal (→ installation, Commissioning and Servicing instructions).

- ▶ Hang the appliance on to the wall mounting frame by the centre hook.

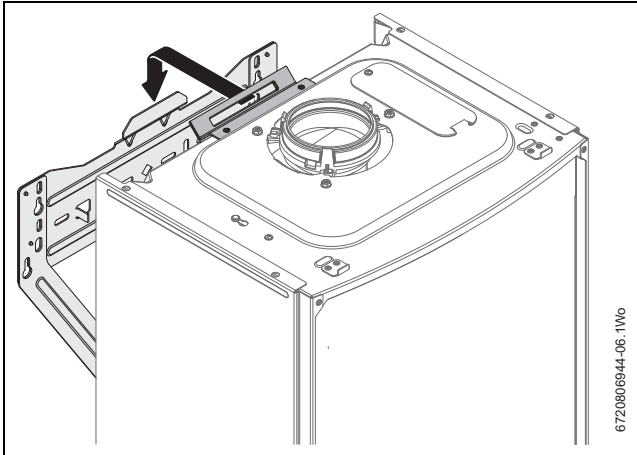


Fig. 12 Hanging the appliance

4.1.5 Fitting the diverter valve motor

Refer to figure 13

- ▶ Remove the diverter valve blanking plate [1] by pulling forwards to release from the diverter valve body.
- ▶ To fit the diverter valve motor [2], push the motor into the housing until the motor "clicks" securely into place, ensuring that the diverter valve actuator arm locates into the middle of the "H" receptacle on the motor.
- ▶ Connect the plug for the diverter valve motor [3], from the main harness on the right hand side of the appliance, into the socket [4] on the diverter valve motor.

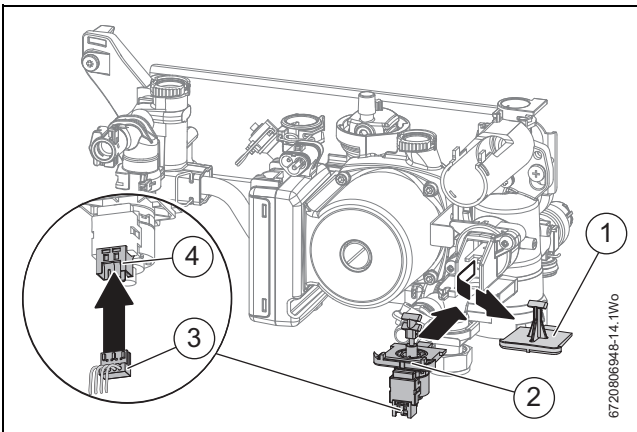


Fig. 13 Diverter valve motor fitting


4.1.6 Fitting the cylinder temperature sensor

This requires placing the cylinder temperature sensor into a suitable pocket or location on the cylinder, ensuring satisfactory contact with the surface of the cylinder. This replaces the traditional cylinder thermostat and must be connected to the Greenstar i System appliance.

If the domestic hot water cylinder is a unvented type the cylinder thermostat sensor is used in conjunction with equipment on the unvented cylinder (→ system connection and layouts).

- ▶ Refer to the cylinder installation instructions for the position of the sensor.
There may already be a sensor pocket available. If there are multiple sensor pockets on the cylinder, make sure the correct sensor pocket is used.

Foam insulated cylinders without sensor pocket



CAUTION: Damage to cylinder!
Damage by piercing the wall of the cylinder.

- ▶ Cut out the foam insulation carefully for sensor and housing installation.

An area of insulation needs to be removed [1] from the cylinder for the sensor and housing.

Refer to figure 14

- ▶ Place the sensor housing [2] on the cylinder body approximately one third of the cylinder height from the bottom of the cylinder. Mark the outline of the sensor housing onto the body of the cylinder.
- ▶ Using a sharp knife, cut through the insulation and remove the piece of insulation [3].
Make sure the exposed surface is clean to allow good surface contact with the sensor.

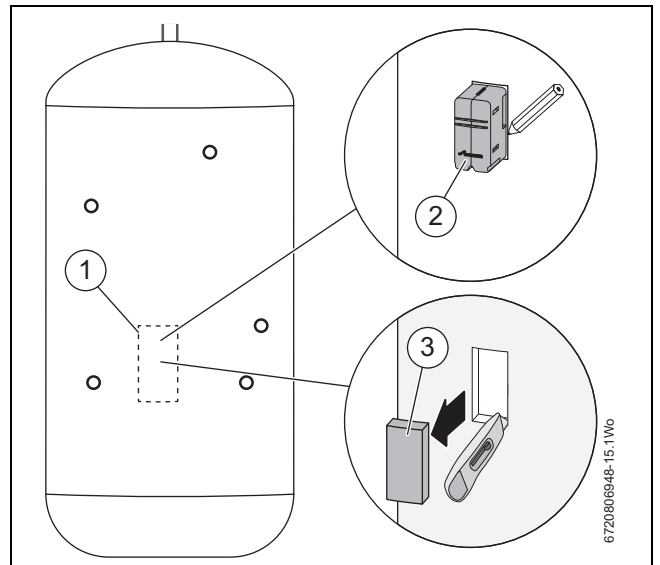


Fig. 14 Preparing the sensor housing location

Refer to figure 15

- ▶ Assemble the sensor housing [4] and slide the sensor [5] up into the housing.
- ▶ Route the sensor cable through the housing.
- ▶ Apply heat conductive paste [6] (not supplied) to the exposed section of the sensor body.
- ▶ Fit the sensor and housing [4] into the cut-out in the cylinder body. Ensure that the sensor touches the cylinder wall.
- ▶ Secure the sensor housing to the cylinder with the wire strap [7] provided.

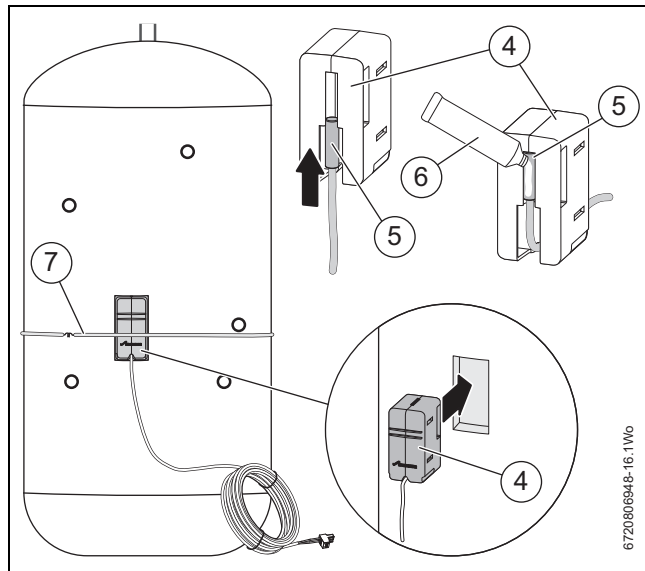


Fig. 15 Fitting the sensor and housing

Extending the cylinder temperature sensor cable

- ▶ Recommended cross-section: 0.75mm² (≥ 0.5mm²)
 - The two wires are not polarity sensitive.
- ▶ Use electrical cable with a minimum rating of H05 VV-... (NYM-I...).
- ▶ When extending the cylinder temperature sensor cable use the following cross-sections:

Cable length	Cross-section
≤ 20m	0.75mm ² ... 1.50mm ²
≤ 30m	1.00mm ² ... 1.50mm ²
≥ 30m	1.50mm ²

Table 10

Connecting the cylinder temperature sensor

- ▶ To avoid inductive interference, lay all low voltage cables separately to cables carrying 230V or 400V with a minimum separation of 100mm.
- ▶ Connect the cylinder temperature sensor lead to the cylinder temperature sensor connection [9] of the low voltage terminal strip.

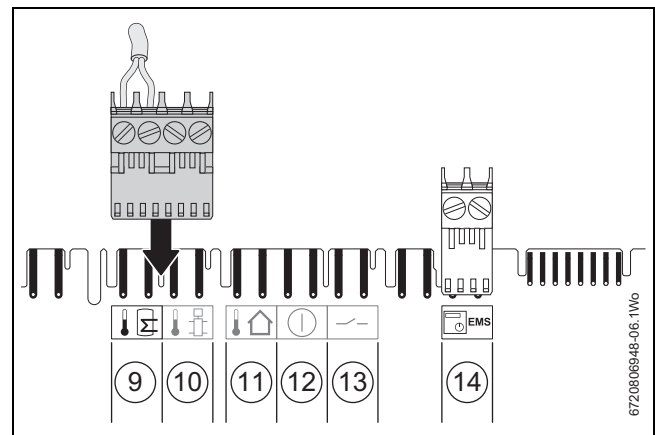


Fig. 16 Cylinder temperature sensor connection (low voltage terminal strip)

Low voltage terminal connections	
9	Cylinder temperature sensor
10	Low Loss Header sensor (NOT USED)
11	Outdoor weather compensation sensor (used when accessory outdoor sensor is connected)
12	External cut off switch (NOT USED)
13	Low voltage room thermostat (NOT USED)
14	Low voltage switch (NOT USED)
15	External control system with EMS bus control, Worcester intelligent wall mounted controls.

Table 11

4.1.7 EMS controls

- ▶ Use electrical cable with a minimum rating of H05 VV-... (NYM-I...).
- ▶ To avoid inductive interference, lay all low voltage cables separately to cables carrying 230V or 400V with a minimum separation of 100mm.
- ▶ Permissible cable
 - The two wires are not polarity sensitive.

Cable length	Cross-section
≤ 80m	0.40mm ²
≤ 100m	0.50mm ²
≤ 150m	0.75mm ²
≤ 200m	1.00mm ²
≤ 300m	1.50mm ²

Table 12

Full details for controls installation can be found in the respective installation instructions.

4.1.8 Mounting optional plug-in controls



Refer to the Programmer/Timer manual for set up and operation of the unit.

- ▶ When connecting Worcester plug-in or EMS intelligent controls, the links (Live 230V out and the LR for CH & DHW) must be left in the connection points.

Removing the blanking plate

- ▶ Remove appliance casing to access control panel.
- ▶ Grip the tab [1], pull up to disengage the clips.
- ▶ Pull forward to remove the blanking plate.

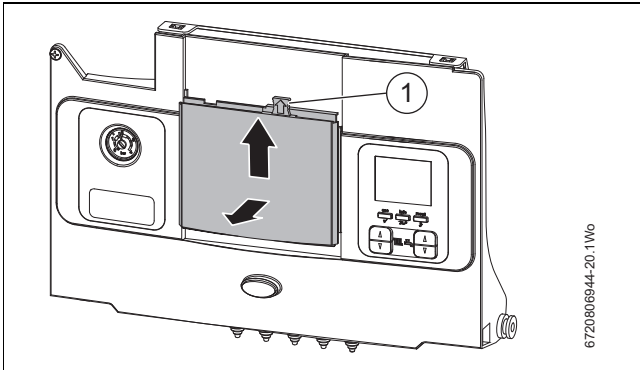


Fig. 17 Removing the blanking panel

Fitting the programmer/timer



When fitting EMS intelligent programmers, aligning the connector pins [2] and ensuring the ribbon cable fits into recess [4] can be ignored.

- ▶ Align the connector pins [2] with the socket on the circuit board [3] and push fully home. Ensure the ribbon cable fits into the recess [4]
- ▶ Align the Programmer/Timer and locating clips with the slots [5].

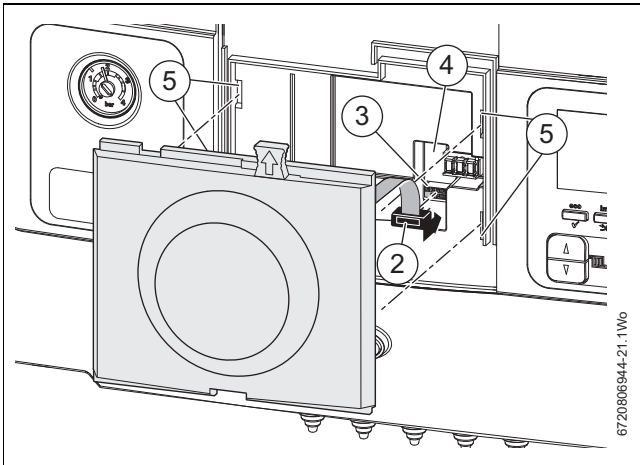


Fig. 18 Plug in connector

- ▶ Once the Programmer/Timer is aligned push the module into the slots.
- ▶ Push the module down to secure into position.

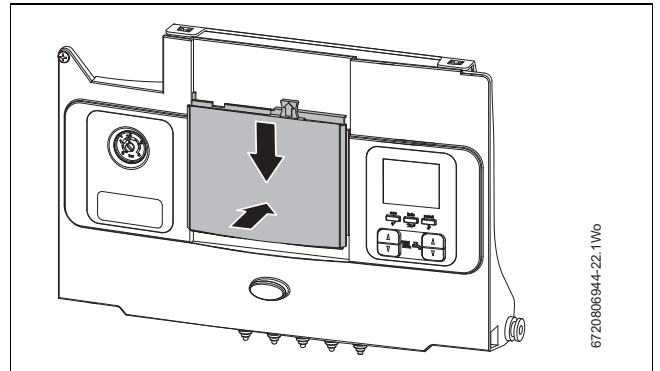


Fig. 19 Securing the module into the control panel

4.2 Integral diverter valve kit electrical connection and system layout.



NOTICE: General information

- ▶ The mains electrical supply to the appliance must be through either a fused double pole isolator or a fused three pin plug and unswitched socket.
- ▶ The isolator shall be situated next to the appliance for new systems and, where practicable, replacement appliances.
- ▶ The isolator must have a contact separation of 3mm minimum in both poles. Any system connected to the appliance must not have a separate electrical supply.
- ▶ External fuse rating 3A.
- ▶ When stripping wires always ensure copper strands do not fall into the control box.

4.2.1 General information

The optional integral diverter valve kit replaces the more common Y-plan and S-plan type systems.

The standard configuration for both the 230V mains supply and time and temperature controls are shown:

- Worcester controls, section 4.2.3
- Mixed controls, section 4.2.4
- External 230V controls, section 4.2.5.
 - This allows for multi-zone configurations by using a 2 port motorized valve for each central heating zone in addition to the integral diverter valve, which are wired back to the wiring centre.

4.2.2 Unvented cylinders

It has been a general consensus, mainly driven by training and accreditation bodies, that the only way of complying with the Building Regulation requirements for the installation of an unvented cylinder is to install a 2port motorised valve on the primary flow from the appliance to the cylinder. This is not the case and other alternative methods can also comply.

It is possible to cut the flow of heat to the cylinder from the appliance, use the optional integral diverter valve kit and still comply with Building Regulation Part G3. It involves re-routing the electrical mains supply to pass either through the high limit thermal cut out or the dual thermostat and safety valve before going to the appliance. In the event of a cylinder over temperature situation the power is cut to the appliance preventing any heat production.

High limit thermal cut out to isolate appliance



Before using this method, the cylinder manufacturer must be contacted for approval that their product can be connected in this manner (wiring and schematic → 4.2.6).

By utilising the high limit thermal cut out part of the dual thermostat to interrupt the electrical supply (permanent live) to the appliance, the appliance shuts down and can no longer provide heat to the cylinder.

Wiring and schematic → 4.2.6.

The following actions must be carried out:

- ▶ Cylinder temperature sensor supplied with the integral diverter valve kit must be fitted to control the hot water temperature. The cylinder temperature sensor is fitted into the same sensor phial pocket as the control thermostat.
- ▶ The control thermostat of the cylinder's dual thermostat is not used, the wiring of the dual thermostat may have to altered (depending on cylinder and thermostat manufacturer) to only use the high limit thermal cut out of the dual thermostat.
- ▶ The high limit thermal cut out of the dual thermostat **must** be wired to interrupt the permanent live to the appliance.
- ▶ The 2 port valve supplied with the unvented cylinder will not be used. If it is already physically installed in the pipework it should be removed and electrically disconnected from the wiring centre.

Dual thermostat and safety valve



If the cylinder manufacturer requires the use of the dual thermostat and safety valve then this method can be used with the integral diverter valve kit, (wiring and schematic → 4.2.7).

By utilising the dual thermostat and safety valve to interrupt the electrical supply (permanent live) to the appliance, the appliance shuts down and can no longer provide heat to the cylinder. Wiring and schematic → 4.2.7.

- ▶ Cylinder temperature sensor supplied with the integral diverter valve kit must be fitted to control the hot water temperature. The cylinder temperature sensor is fitted into the same sensor phial pocket as the control thermostat.
- ▶ The dual thermostat and safety valve are wired in series to interrupt the permanent live to the appliance. The wiring of the components is either using:
 - a wiring centre (part of the cylinder package), following the connection terminals as described in the cylinder manufacturers instructions for the cylinder package.
 - a junction box (separate to the cylinder package).
- ▶ Cylinder thermostat on the dual thermostat should be set to maximum (approximately 68 °C).
- ▶ Appliance DHW thermostat set to 60 °C.

4.2.4 Mixed controls

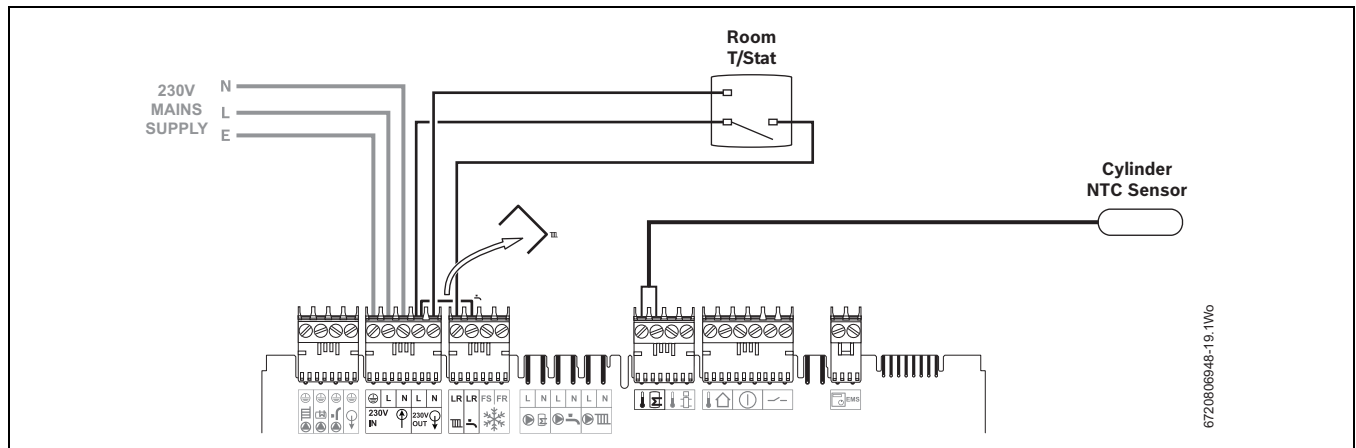


Fig. 22 Wiring diagram

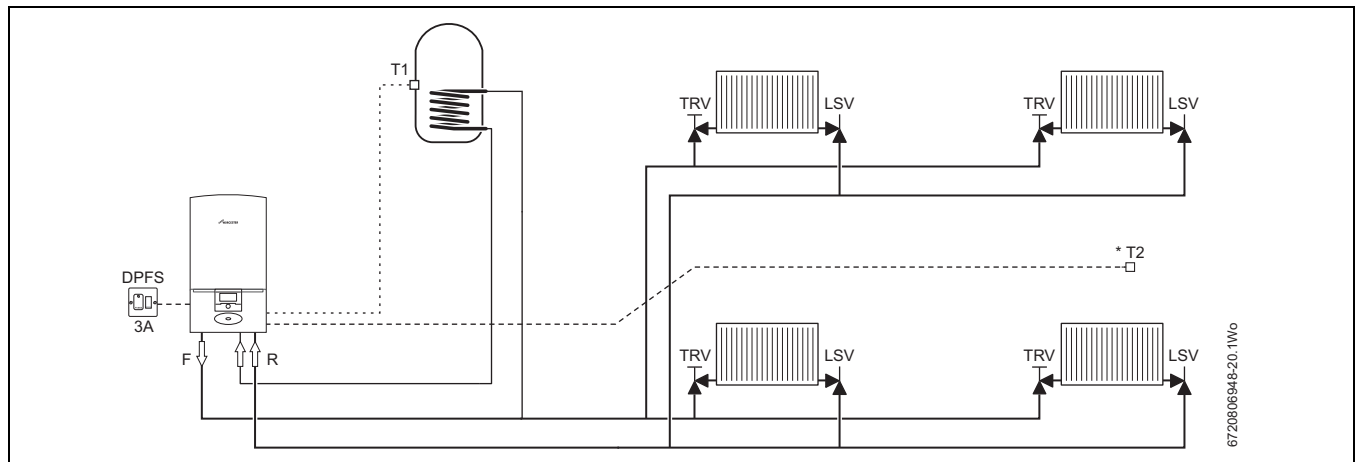


Fig. 23 System layout



* Radiators in rooms with room thermostats must be uncontrolled and therefore must not have a TRV fitted.

Worcester control options

- DT20 twin channel digital programmer
- Comfort

F	Flow	LSV	Lock shield valve
R	Return	T1	Cylinder NTC sensor
DPFS	Double pole fused spur	T2	Room thermostat
TRV	Thermostatic radiator valve		

Table 14

4.2.5 External 230V controls

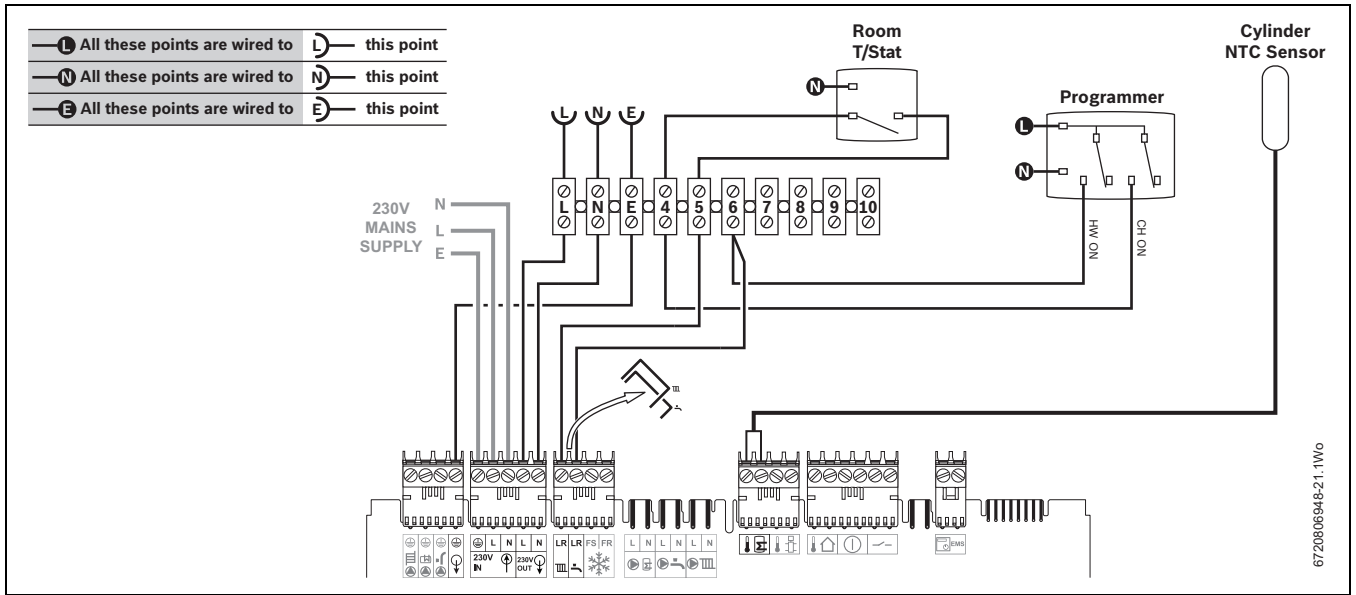


Fig. 24 Wiring diagram

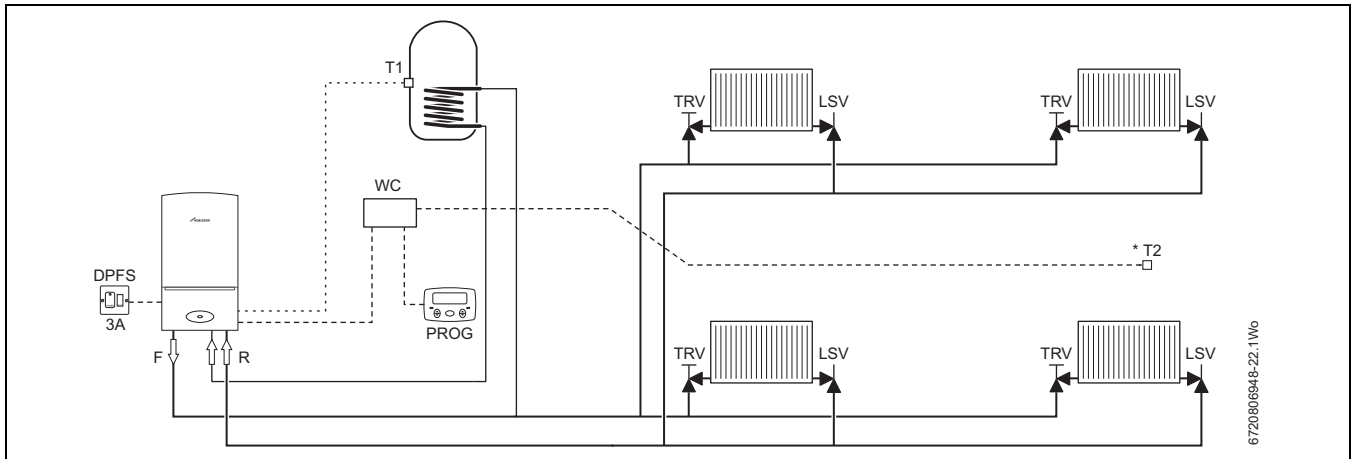


Fig. 25 System layout



* Radiators in rooms with room thermostats must be uncontrolled and therefore must not have a TRV fitted.

F	Flow	LSV	Lock shield valve
R	Return	T1	Cylinder NTC sensor
DPFS	Double pole fused spur	T2	Room thermostat
WC	Wiring centre	PROG	Programmer
TRV	Thermostatic radiator valve		

Table 15

4.2.6 Unvented cylinder with High limit thermal cut out

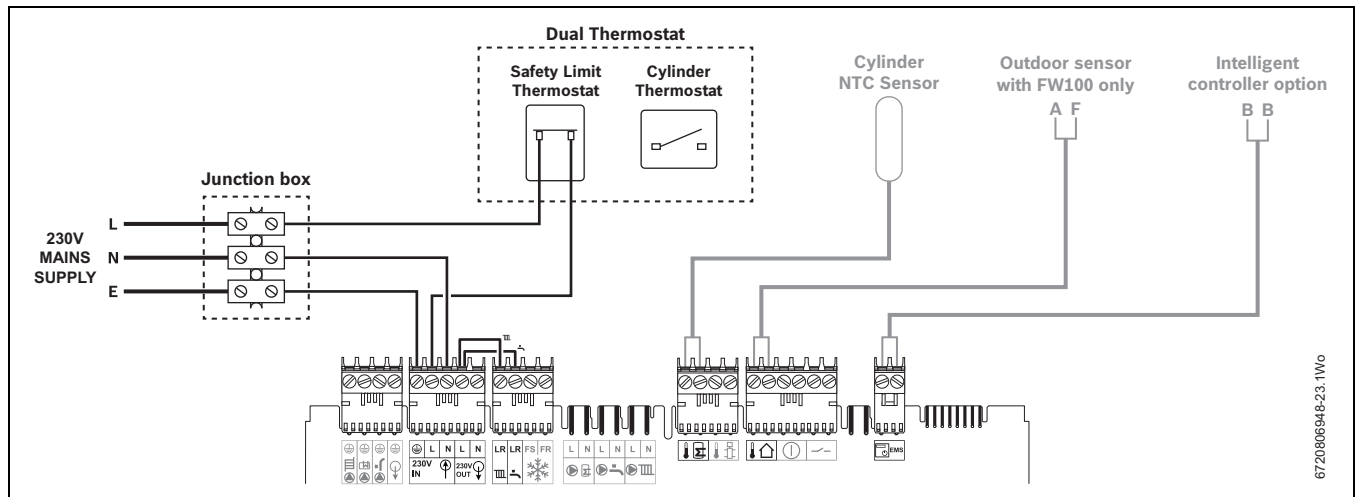


Fig. 26 Wiring diagram (example is showing with Worcester controls)

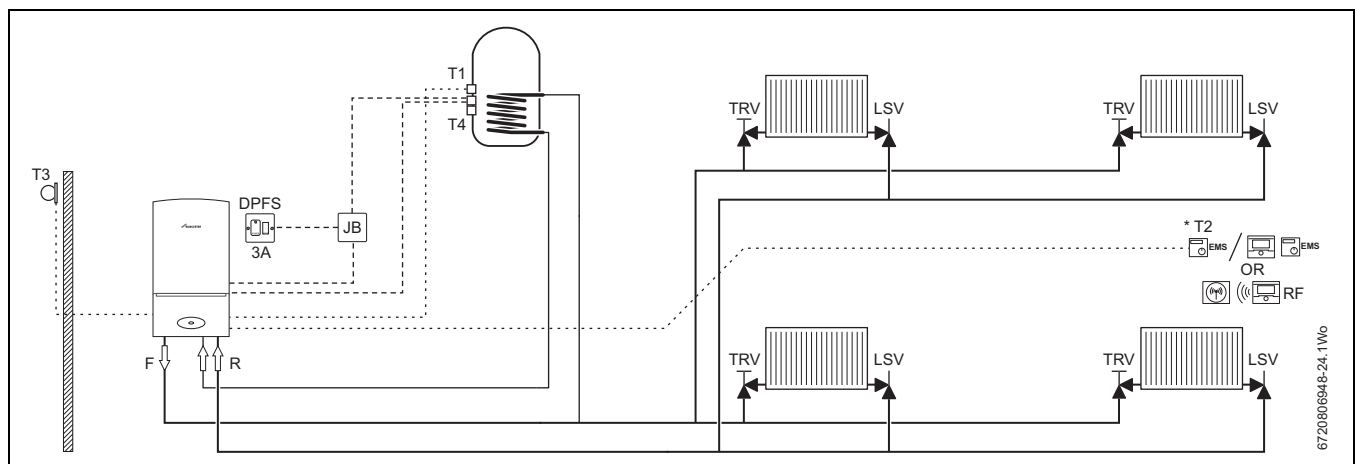


Fig. 27 System layout (example is showing with Worcester controls)



* Radiators in rooms with room thermostats must be uncontrolled and therefore must not have a TRV fitted.

F	Flow	LSV	Lock shield valve
R	Return	T1	Cylinder NTC sensor
DPFS	Double pole fused spur	T2	Worcester time and temperature controller
JB	Junction box	T3	Outdoor sensor
TRV	Thermostatic radiator valve	T4	High limit thermal cut out (separated from the dual thermostat)

Table 16

Time and temperature control options

Although the example here shows the use of Worcester controls with the modified mains supply to the appliance the options listed for the additional equipment are also viable:

- Mixed controls (→ 4.2.4)
- External 230V controls (→ 4.2.5)

Worcester control options

- FR10 intelligent room thermostat & DT 20 twin channel digital programmer.
- FR110 programmable room thermostat.
- FW100 weather compensation controller.
- DT20RF digital RF thermostat with twin channel programmer.
- DT10RF Digistat.
- DT10RF optimizer.
- Comfort I RF.
- Comfort II RF.
- Sense I & Comfort.
- Sense II.
- Worcester Wave





4.3 Removing the optional integral diverter valve kit

If you remove the optional integral diverter valve kit and return the appliance to its original state. A factory reset will need to be carried out once all of the kit components have been removed.

This resets the appliance controls configuration and does not think the cylinder sensor and Worcester controls are still connected and a communication fault with the accessories has occurred.

4.3.1 Factory Reset

To reset all settings on Boiler settings and Weather sensor settings back to the factory defaults:

- ▶ Press the  and  buttons for approximately 8 seconds to enter appliance menu function.
- ▶ Press the  button or the  button to select all the menu settings to the factory settings.

This is confirmed on the display with a tick and the word "Reset". after approximately 4 seconds the display returns to main screen.

Notes

Notes

Worcester, Bosch Group
Cotswold Way, Warndon, Worcester WR4 9SW.
Tel. 0330 123 9559

Worcester, Bosch Group is a brand name of Bosch Thermotechnology Ltd.
worcester-bosch.co.uk

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APPOINTMENTS:	0330 123 9339
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LITERATURE:	0330 123 9119
TRAINING:	0330 123 0166
SALES:	0330 123 9669



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