United Kingdom
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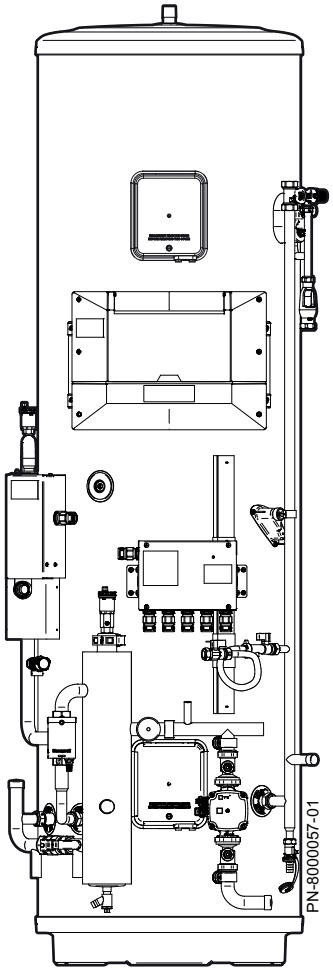


Installation and Service Manual

Baxi ASHP Pre-plumbed cylinder

Unvented hot water cylinder range

These instructions include the Benchmark Commissioning Checklist and should be left with the user for safe keeping.They must be read in conjunction with the Flue Installation Guide.

Dear Customer,

Thank you very much for buying this appliance.

Please read through the manual carefully before using the product, and keep it in a safe place for later reference. In order to ensure continued safe and efficient operation we recommend that the product is serviced regularly. Our service and customer service organisation can assist with this.

We hope you enjoy years of problem-free operation with the product.

Contents

1 Safety

1.1 General usage warning

Important
This appliance can be used by children aged from 3 years and above and persons with reduced physical sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
Children must be supervised to ensure they do not play with the appliance.
Children aged from 3 to 8 years are only allowed to operate the tap connected to the water heater

1.2 General safety warnings

Danger
This appliance is unvented and as such becomes pressurised when in operation. The combination of pressurisation and hot water could lead to serious physical injury. The safety instructions in this manual must be adhered to.

Warning
- Only competent persons having received adequate training are permitted to work on the appliance and the installation.
- Before any work, disconnect the mains electrical supply to the appliance.
- DO NOT switch on the appliance if there is a possibility that the water in the appliance is frozen.

Caution
DO NOT operate immersion heaters until the appliance has been filled with water.

Warning
When handling the appliance, take appropriate precautions for the weight of the appliance. Weights can be found in section Technical specification.

Caution
Annual maintenance is recommended by a competent person.

Caution
Baxi recommend the appliance is serviced annually. This must be undertaken by a competent person having received adequate training.

Warning
- If this appliance develops a fault, such as visible water discharge at the tundish or final point of discharge, shut-down the energy input to the appliance and DO NOT turn off any water supply. Contact a competent installer to check the system.
- DO NOT tamper with any of the safety valves fitted to the system. If a fault is suspected contact a competent installer.
- DO NOT bypass the thermal cut-out(s) in any circumstances.

1.3 Legionella warning

Warning
Legionellosis is a collective term for diseases caused by legionella bacteria including the most serious legionnaires' disease. Legionnaires' disease is a potentially fatal form of pneumonia and everyone is susceptible to infection. Any water system, with the right environmental conditions, could be a source for legionella bacteria growth. There is a reasonably foreseeable legionella risk if your water system has the following:

- A water temperature between 20–45 °C
- Stores and/or recirculates water
- Is likely to contain a source of nutrients for the organism to grow, such as rust, sludge, scale

The anti-legionella function is designed to prevent legionella occurring. This function raises the hot water temperature in the cylinder to 60ºC. The function runs weekly. The time and day is set from the controller and is typically run during the night during an economy period.
The heat pump will attempt to raise the hot water temperature during the anti-legionella cycle. If it cannot achieve the required temperature, the backup heater will activate to assist the heat pump and complete the anti-legionella cycle.
A competent person must service the appliance annually and inspect and clean the system.
This must be in accordance with commercial application risk assessments where applicable.

1.4 Additional usage warning

Important
Water may drip from the discharge pipe of the pressure-relief device and this pipe must be left open to the atmosphere.
The pressure-relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked, (see Safety pressure relief valve operation, page 36 for more details)
How hot water can be drained. (see Descaling immersion heater(s), page 36 for more details)
The type or characteristics of the pressure-relief device and how to connect it; (see Water connections, page 21 for details)
A discharge pipe connected to the pressure-relief device is to be installed in a continuously downward direction and in frost free environment.
Details on how to set the temperature controls for both immersion heaters and heat pump controls can be found in Electrical connections, page 25

1.5 Liabilities

1.5.1 Manufacturer's liability

Our products are manufactured in compliance with the requirements of the various Directives applicable. They are therefore delivered with the CE marking and any documents necessary. In the interests of the quality of our products, we strive constantly to improve them. We therefore reserve the right to modify the specifications given in this document.

Our liability as manufacturer may not be invoked in the following cases:

- Failure to abide by the instructions on installing and maintaining the appliance.
- Failure to abide by the instructions on using the appliance.
- Faulty or insufficient maintenance of the appliance.

1.5.2 Installer's liability

The installer is responsible for the installation and initial commissioning of the appliance. The installer must observe the following instructions:

- Read and follow the instructions given in the manuals provided with the system.
- Install the system in compliance with prevailing legislation and standards.
- Carry out initial commissioning and any checks necessary.
- Explain the installation to the user.
- If maintenance is necessary, warn the user of the obligation to check the appliance and keep it in good working order.
- Give all the instruction manuals to the user.

1.5.3 User's liability

To guarantee optimum operation of the system, you must abide by the following instructions:

- Read and follow the instructions given in the manuals provided with the appliance.
- Call on a qualified professional to carry out installation and initial commissioning.
- Get your installer to explain your installation to you.
- Have the required inspections and maintenance carried out by a qualified installer.
- Keep the instruction manuals in good condition close to the appliance.

2 About this manual

2.1 General

The following instructions are offered as a guide to the user and installer. The installation must be carried out by a competent plumbing and electrical installer in accordance with the prevailing local building, electrical and water regulations, the code of practice and the recommendations in these instructions.

2.2 Symbols used in the manual

This manual uses various danger levels to draw attention to special instructions. We do this to improve user safety, to prevent problems and to guarantee correct operation of the appliance.

Danger
Risk of dangerous situations that may result in serious personal injury.

Danger of electric shock
Risk of electric shock.

Warning
Risk of dangerous situations that may result in minor personal injury.

Caution
Risk of material damage.

Important
Please note: important information.

See
Reference to other manuals or pages in this manual.

3 Technical specifications

3.1 Technical data

Tab.1 Performance

	170	210	250	300
Immersion heat up times (mins) - boost immersion (1)	195	67	67	67
Coil surface area (m^2)	2		3	
Coil volumes (litres)	5.2		8.9	
Coil heat up times (@ 15 litres/min)	18.7	21.8	23.0	27.5
Coil rating (kW) (2)	31.3	32.5	37.0	37.9
Pressure drop through coil (Bar) (2)	0.09		0.12	
Hot water capacity (volume to >40°C) (litres)	160.2	198	236.9	290.2
Weight empty (kg)	61	68	74	83
Weight full (kg)	228	277	320	370
Volume (litres @ 3 bar)	167	209	246	287

	170	210	250	300
Standing heat-loss (kWh/24 h)	1.38	1.64	1.86	2.02
Max mains pressure	16 bar			
Max design pressure	8 bar			
Operating pressure/PRV set pressure	3 bar			
Max primary pressure	3 bar			
Expansion relief valve setting	8 bar			
T&P valve setting	10 Bar/90°C			
T&P part number	95605810			
Rated Pressure	8 bar			
Max primary and secondary temperature	95°C			
Electrical ratings :				
• Control box • Immersion heater • Backup heater	90W | 6A max @230VaC 50Hz 2800W @230VaC 50Hz 2875W @230VaC 50Hz			
(1) Temperature rise 50°C (10°C - 60°C) (2) Cylinder tested in conformance to Annex A, BS EN 12897:2016				

Tab.2 Technical parameters

Models	170L	210L	250L	300L
Energy efficiency class (1)	B	B	C	C
Storage volume (V) in litres (1)	170	210	250	300
Standing loss in W/h (1)	57	68	77	84
(1) In accordance with European Commission regulations 814/2013 and 812/2013				

Outer casing

White pre-coated corrosion protected steel body shell. Polypropylene top and base mouldings. ABS electrical controls housings and enclosures.

Water container

Duplex stainless steel. 100% pressure tested to 1.6 MPa (16 bar)

Connections

Stainless steel

Pipe connections accept 22 mm outside diameter pipe (compression nuts and olives supplied). Thread rate is 3/4" BSP parallel to accept standard 3/4" BSP female fittings if required

Thermal insulation

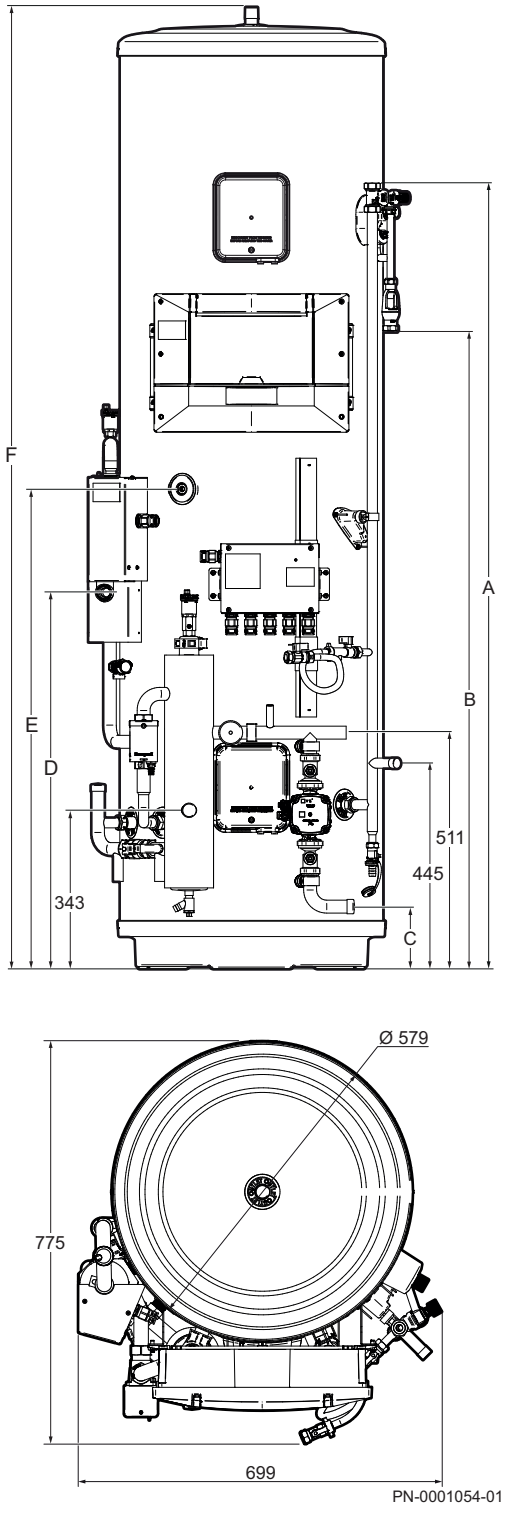
CFC/HCFC free fire retardant expanded polyurethane foam with zero ozone depletion potential. It has a Global Warming Potential (GWP) of 3.1

Safety Features

Manually re-settable thermal cut-out on each immersion heater. Factory fitted T&P Relief Valve

3.2 Dimensions and connections

Fig.1 Dimensions



Tab.3 Dimensions

Model reference	Dimensions (mm)					
	A	B	C	D	E	F
170	942	602	134	758	814	1280
210	1157	812	134	803	814	1516
250	1408	1064	134	814	978	1767
300	1718	1378	135	815	1039	2082

4 Description of the product

4.1 General Description

This appliance is a purpose designed pre-plumbed/pre-wired unvented water heater. It is suitable for Installation in combination with an air source heat pump as the heat source, (see Technical data, page 7 for information on the materials used in this product.)

The controller fitted to the cylinder, is the master controller. The heat pump become the slave unit for energy production. A backup heater is factory fitted to support the heat pump, when required.

The controller can support 2 zones. The first zone is factory fitted with pump and diverter valve for DHW or heating. The second zone kit is available from Baxi as an accessory kit, if required.

The appliance is supplied with the necessary safety and controller devices required to connect to the cold water mains. All these components are pre-set and must not be tampered with.

4.2 Operating principle

The Pre-Plumbed/Pre-wired unvented water heater controls the heat pump, stores hot water and produces heating for up to 2 heating zones

The hot water is heated indirectly through a specially designed coil. This is designed to work with the Baxi range of Air Source Heat Pumps. The diverter valve is powered into the domestic hot water (DHW) position. If a fault occurs in the backup heater any over temperature cuts off the power to the diverter valve. The diverter valve moves to the heating position. This stops any more heat entering the cylinder. Legionella cycles also use the backup heater.

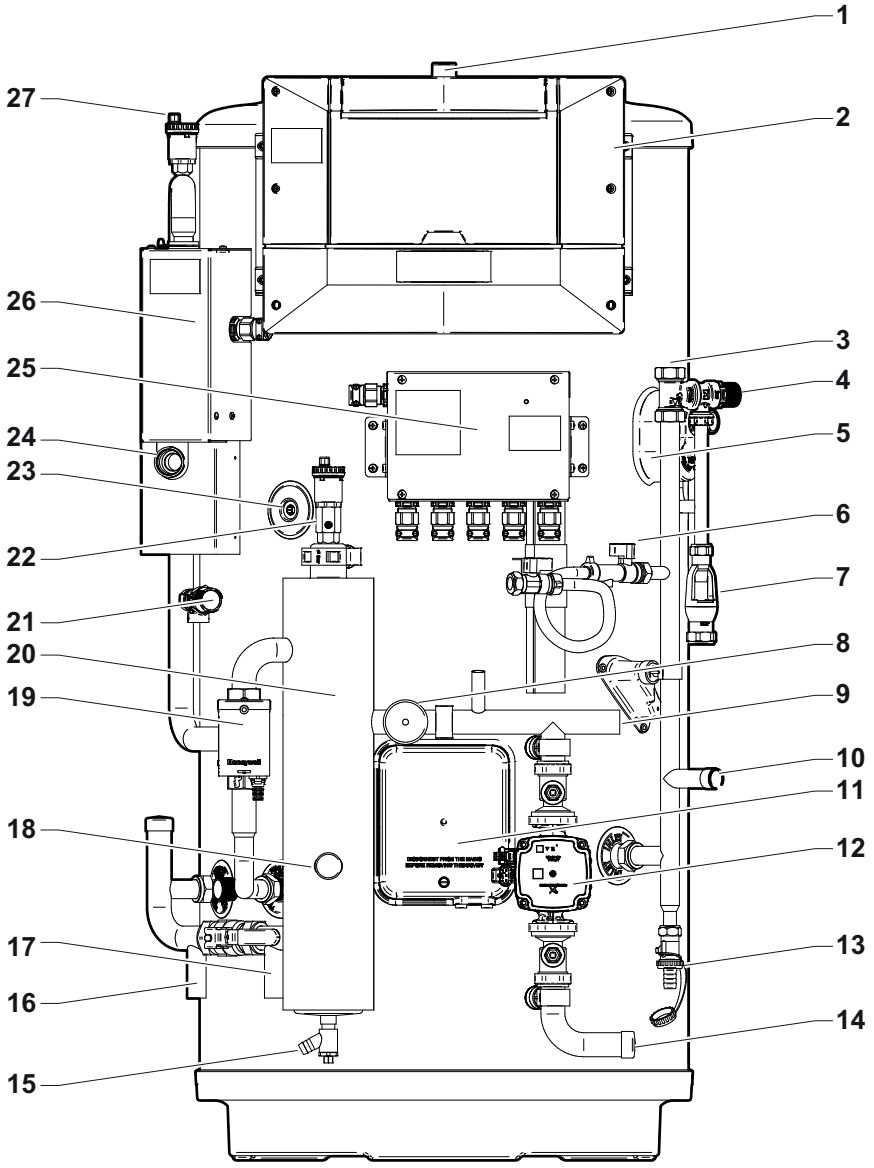
To provide pressure to the tap or shower, an unvented water heater uses the incoming mains water pressure. To do this the appliance is sealed and not vented. When the volume of water is heated it expands. Without any room for expansion, the water can cause the appliance to rupture and fail. The appliance requires a separate expansion vessel to accommodate this expansion. The expansion vessel is supplied as part of the installation kit.

In the event that the expansion vessel fails, a suitable safety relief valve must be fitted. This allows water to be released and prevents damage to the cylinder.

Upon first power up of the controller the Pre-Plumb cylinder operates the deaeration cycle. This operates the heating pump and moves the diverter valve to aid air removal from the system. Once complete a demand can be placed via the controller for hot water of heating zone 1/2 as required. Refer to the Controller manual for operation and settings.

4.3 Main Components

Fig.2 Main components



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1 Hot water outlet (¾" BSP male)
2 Controller
3 Cold water inlet (¾" BSP male)
4 Expansion non-return valve
5 Temperature/pressure relief valve
6 Filling loop
7 Tundish
8 Pressure gauge
9 Zone outlet (capped)
10 DHW expansion vessel
11 Lower immersion heater
12 Zone pump
13 Drain valve (DHW)
14 Pumped zone outlet (open)
15 Drain valve (primary)
16 Volumiser return (capped)
17 Volumiser flow (capped)
18 Zone(s) return
19 Diverter valve
20 Low loss header
21 3 bar safety pressure relief valve
22 Automatic air vent
23 *Not used*
24 Heat pump inlet
25 Contactor box
26 Back up heater
27 Automatic air vent

4.4 Standard delivery

The delivery includes:

- Appliance
- Installation & Service Instructions

- Controller instructions
- Quick start guide
- Warranty registration card
- Installation kit

Important
The standard delivery does not include any check valve.

4.5 Storage and Handling

Warning
When handling the appliance, take appropriate precautions for the weight of the appliance. Weights can be found in section Technical specification.

If the appliance is to be stored before installation it must be placed upright on a secure, level surface. The appliance must be stored in a dry, frost free environment. The support surface must be capable of supporting the packaged weight of the appliance. The packaged weight is displayed on the carton label.

The appliance is heavy and must only be moved manually using safe working practices. Once the appliance is removed from the packaging, the appliance can be lifted. Use the lifting aids within the top and base mouldings.

5 Before installation

5.1 Installation regulations

Warning
Installation, repair and maintenance must only be carried out by a competent person. This document is intended for use by competent persons.

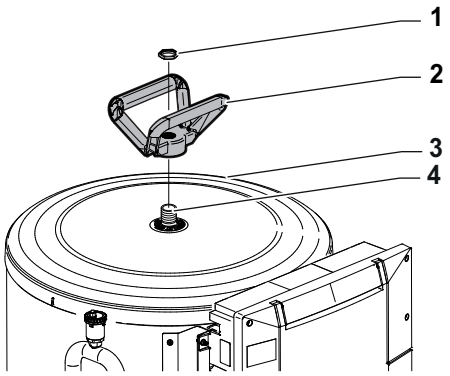
Installation must be carried out in accordance with the following:

- Local/national building regulations
- Local/national electrical regulations
- Local/national water regulations
- Code of practice and recommendations in these instructions

5.2 Installation requirements

5.2.1 Fitting the lifting handle

Fig.3 Fitting the lifting handle



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Important
Do not use the pipework or controller housing to move the cylinder. The cylinder must only be moved using the lifting handle.

The lifting handle is fitted as follows:

1. Remove the plastic cap (if fiitted) from the DHW outlet (4).
2. Screw the lifting handle (2) on to the DHW outlet (4).
3. Screw the locknut (1) on to the DHW outlet (4).
4. Position the cylinder (2) as required.
5. Remove the locknut (1).
6. Remove the lifting handle (2).

5.2.2 Minimum volume of water

The volume of water in the installation must be sufficient to avoid short cycle operation and to enable optimal defrosting.

Important
The minimum volume of water in circulation must be available at any time, even if there is no heating demand or when all the valves are closed.

If the volume of water in circulation is not sufficient, it is necessary to install a buffer tank with the additional volume.

Important
The values given below take precedence over those given in the installation manual for the MONO AWHP2R outdoor unit.

Tab.4 Glycol-free installation - MONO AWHP2R outdoor units

Minimum volume of water in circulation (l)	MONO AWHP2R 4MR	MONO AWHP2R 6MR	MONO AWHP2R 8MR	MONO AWHP2R 10MR	MONO AWHP2R 12MR	MONO AWHP2R 12TR	MONO AWHP2R 16MR	MONO AWHP2R 16TR
35°C application Underfloor heating	32	38	44	48	53	53	61	61
45°C application Low temperature radiators or convection fans	18	22	26	29	40	40	41	41
55°C application Medium temperature radiators	17	18	29	30	50	50	54	54

Tab.5 Installation with glycol - MONO AWHP2R outdoor units

Minimum volume of glycol water in circulation (l)	MONO AWHP2R 4MR	MONO AWHP2R 6MR	MONO AWHP2R 8MR	MONO AWHP2R 10MR	MONO AWHP2R 12MR	MONO AWHP2R 12TR	MONO AWHP2R 16MR	MONO AWHP2R 16TR
35°C application Underfloor heating	37	44	51	56	61	61	71	71
45°C application Low temperature radiators or convection fans	21	26	30	34	46	46	48	48
55°C application Medium temperature radiators	20	21	34	35	58	58	63	63

5.2.3 Water supply

In an unvented system, the pressure and flow rate is directly related to the incoming water supply. It is recommended that the maximum water demand is assessed. Check the water supply to ensure the demand can be satisfactorily met.

- We suggest a minimum supply requirements of 0.15MPa (1.5 bar) pressure and 20 litres per minute flow rate. However, at these values outlet flow rates may be poor if several outlets are used simultaneously.
- A 22mm cold water supply is recommended, however, if a 15mm (1/2") supply exists, which provides sufficient flow, this may be used (although more flow noise may be experienced).
- The higher the available pressure and flow rate the better the system performance.

5.2.4 Outlet/terminal fittings (taps, others)

- The appliance can be used with most types of terminal fittings.
- Outlets situated higher than the appliance will give outlet pressures lower than that at the heater, a 10m height difference will result in a 1 bar pressure reduction at the outlet.
- All fittings, pipe work and connections must have a rated pressure of at least 6 bar at 80°C.
- It is advantageous in many mixer showers to have a balanced hot and cold water supply. In these instances a balanced cold water connection is available on the combination valve.

5.2.5 Limitations

The unit must not be used in association with any of the following:

- Solid fuel boilers or any other boiler in which the energy input is not under effective thermostatic control. Additional and appropriate safety measures must be installed.
- Steam heating plants unless additional and appropriate safety devices are installed.
- Situations where maintenance is likely to be neglected or safety devices tampered with.

- Water supplies that have either inadequate pressure or where the supply may be intermittent.
- Situations where it is not possible to safely pipe away any discharge from the safety valves.
- In areas where the water consistently contains a high proportion of solids. For example, suspended matter that could block the strainer, unless adequate filtration can be ensured.
- In areas where the water supply contains chloride levels that exceed 250 mg/l.

5.2.6 Electrical supply

Danger
Wiring of the appliance must be carried out in accordance with current IEE wiring regulations.

Warning
- Disconnect from the mains electrical supply before removing any covers.
- All electrical wiring must be carried out by a competent electrician and be in accordance with the latest local/ national electrical regulations.

Connection of the appliance must be carried out by a competent person. This must be done in accordance with local and national regulations. The instructions in this manual must be followed.

External wiring must be correctly earthed, polarised and be in accordance with relevant regulations/rules. In this is the current IEE Wiring Regulations. In reference must be made to the current edition of ETCI rules. The electrical supply and wiring must be correctly rated to the appliance.

In order to provide a means of isolation, the appliance must be connected to the mains supply. It must use a double pole linked switch with a minimum contact gap of 3 mm in all poles. The RCD is suitable for this requirement if mounted near to the appliance.

Important
Before installation, check the incoming mains supply. Ensure there is sufficient current and voltage for the size of the appliance.
The correctly sized cable must be used to supply the appliance.
A double pole RCD with 30 mA trip level sensitivity must be used. It must be capable of breaking the full load current to BS EN 61008:1994

Important
- Heat, oil and flame resistant (HOFR) cable must be used to supply mains power.
- The mains power terminals in the appliance are suitable for cable up to 10 mm^2.
- On completion of the work the installation must be tested to IEE regulations
- A NICEIC inspection and completion certificate must be issued.

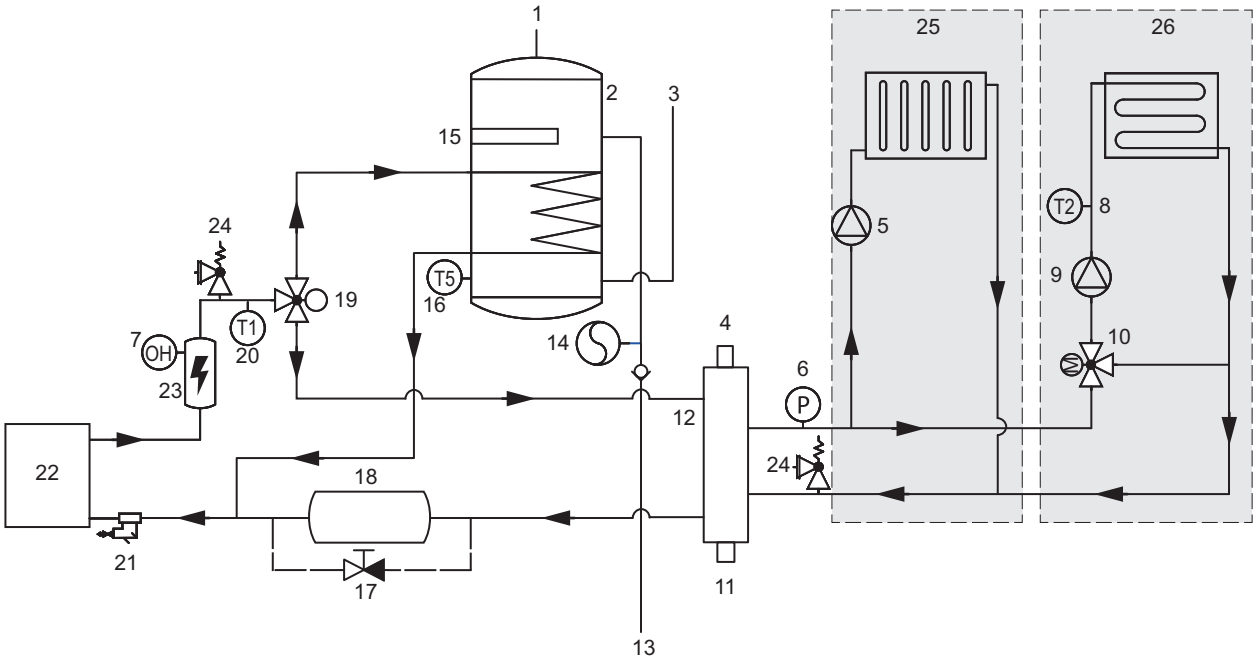
The connections must be tightened to 3 Nm.

In case of difficulty contact service support. Contact details are available on the back of this manual.

5.3 Connecting diagrams

5.3.1 Hydraulic diagram

Fig.4 Hydraulic diagram



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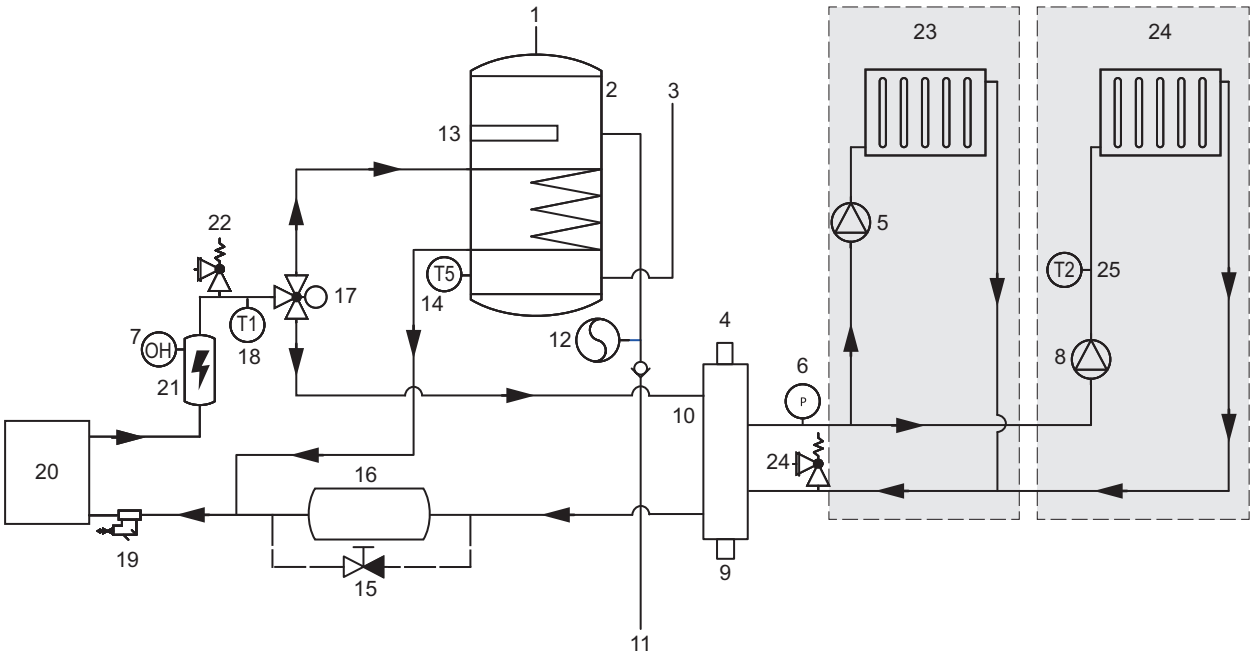
1 Hot water out
2 Domestic hot water (DHW) cylinder
3 Cold water in
4 Automatic air vent
5 Zone A pump
6 Pressure gauge 3 bar
7 Overheat thermostat
8 Zone B heating temperature sensor
9 Zone B pump (optional)
10 Mixing valve (optional)
11 Drain
12 Low loss header (LLH)
13 Discharge pipe
14 Expansion vessel
15 Immersion heater
16 Domestic Hot Water (DHW) temperature sensor
17 Bypass valve
18 Volumiser (optional)
19 Diverter valve
20 Tsystem temperature sensor
21 Magnetic filter (alternative position)
22 ASHP
23 Backup heater
24 PRV
25 Zone A
26 Zone B

Fig.5 Hydraulic diagram

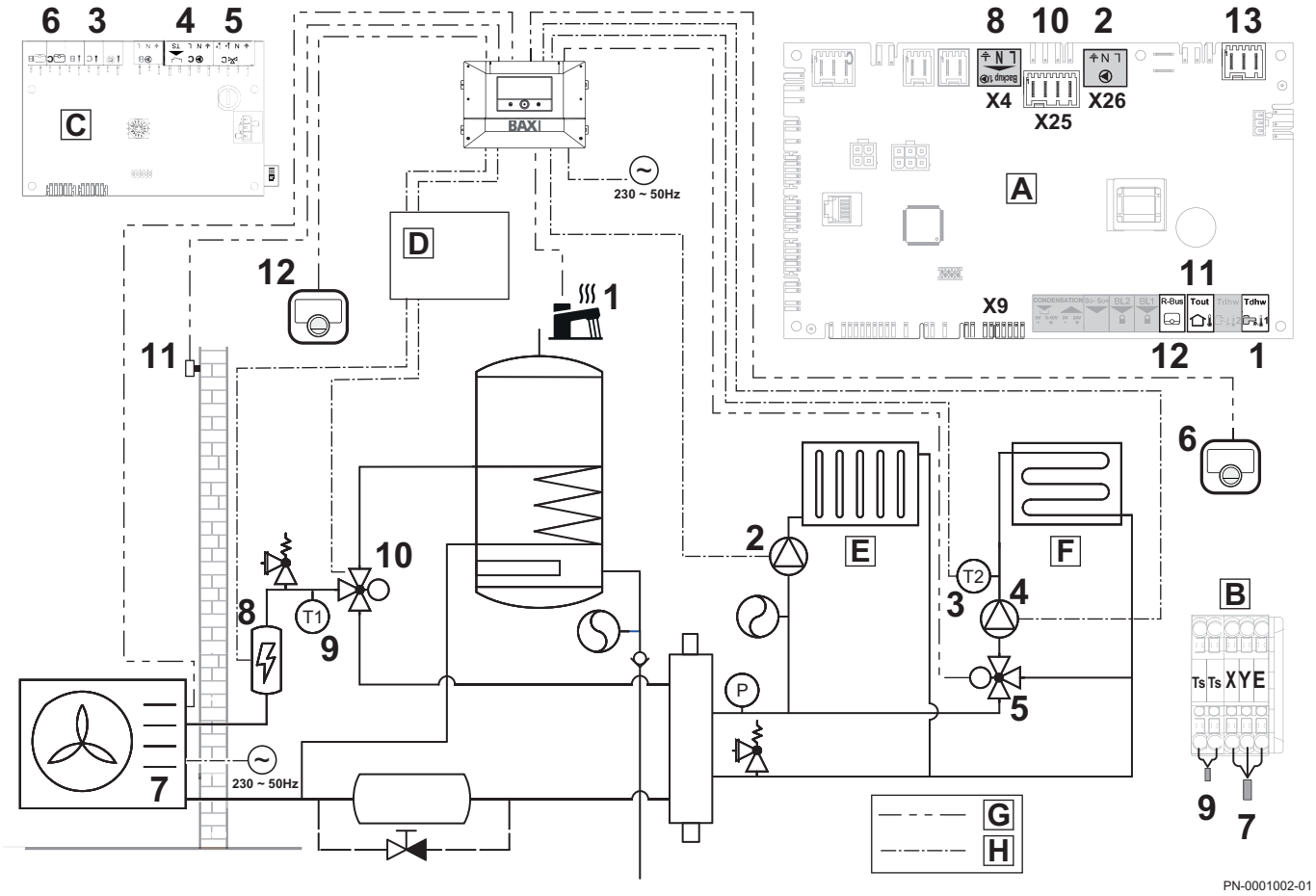


PN-0001061-01

1 Hot water out
2 Domestic hot water (DHW) cylinder
3 Cold water in
4 Automatic air vent
5 Zone A pump
6 Pressure gauge 3 bar
7 Overheat thermostat
8 Zone B/C pump (optional)
9 Drain
10 Low loss header (LLH)
11 Discharge pipe
12 Expansion vessel
13 Immersion heater
14 Domestic Hot Water (DHW) temperature sensor
15 Bypass valve
16 Volumiser (optional)
17 Diverter valve
18 Tsystem temperature sensor
19 Magnetic filter (alternative position)
20 Air source heat pump (ASHP)
21 Backup heater
22 PRV safety
23 Zone A
24 Zone B/C
25 Zone B/C temperature sensor

5.3.2 Connecting and configuring the heat pump

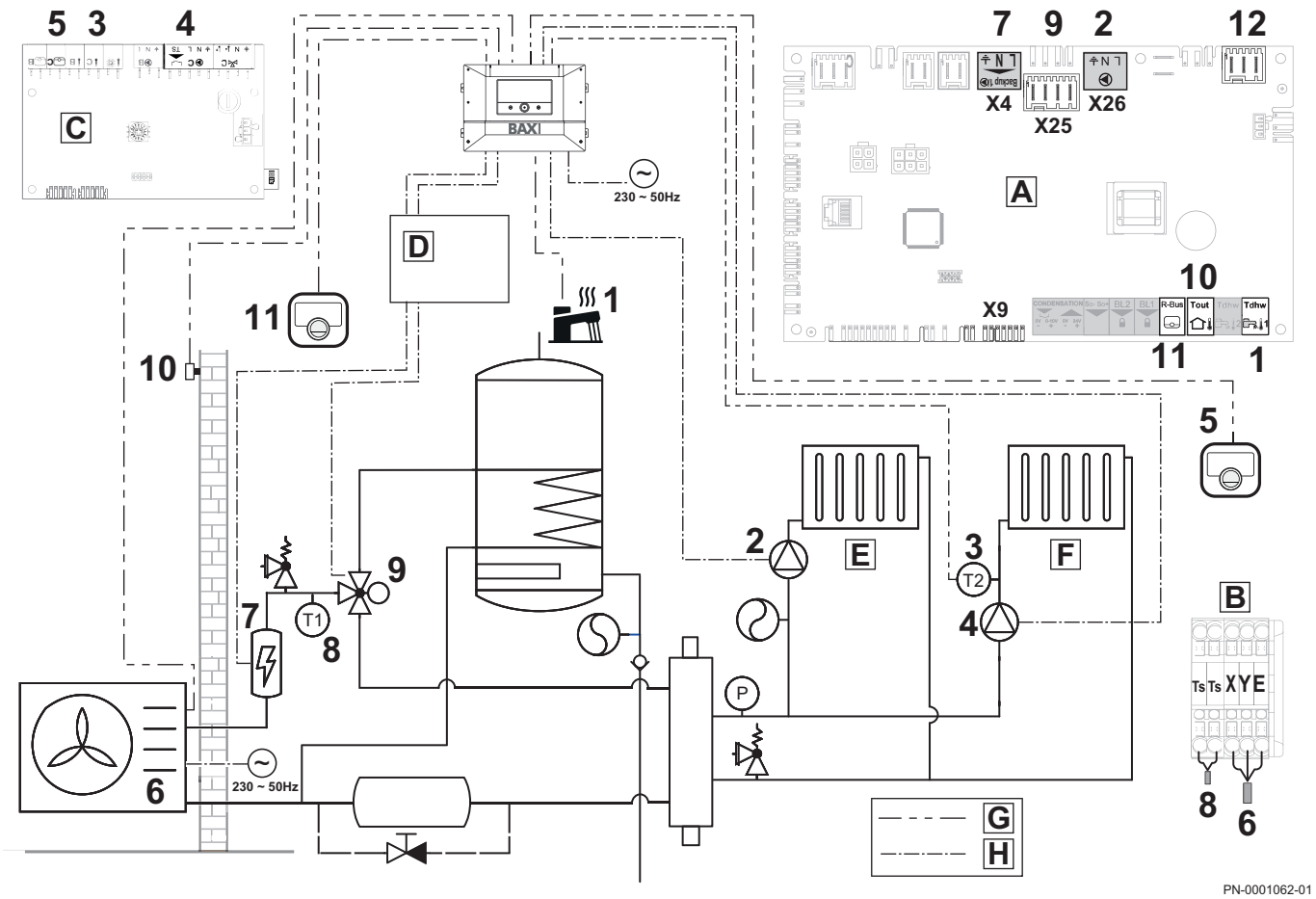
Fig.6 Hydraulic schematic for Zone A and Zone B



1 Domestic hot water
2 Pump (zone 1)
3 Heating flow temperature sensor (zone 2)
4 Pump (zone 2)
5 Mixing valve
6 OpenTherm (zone 2)
7 Heat pump communication cable
8 Backup heater
9 Heating flow temperature sensor (zone 1)
10 3 way valve
11 Outdoor temperature sensor
12 OpenTherm (zone 1)
13 Power cable connection 230 V-50 Hz

A EHC-12
B Connector block
C SCB-17
D Contactor box
E Zone A
F Zone B
G Data line
H Power line

Fig.7 Hydraulic schematic for Zone A and Zone B or Zone C



1 Domestic hot water
2 Pump (zone 1)
3 Heating flow temperature sensor (zone 2)
4 Pump (zone 2)
5 OpenTherm (zone 2)
6 Heat pump communication cable
7 Backup heater
8 Heating flow temperature sensor (zone 1)
9 3 way valve
10 Outdoor temperature sensor
11 OpenTherm (zone 1)
12 Power cable connection 230 V-50 Hz

A EHC-12
B Connector block
C SCB-17
D Contactor box
E Zone A
F Zone B or C
G Data line
H Power line

Warning
Ensure the system has been electrically isolated before commencing any work.

Warning
Only competent persons having received adequate training are permitted to work on this system.

1. After initial start-up, or a factory reset of the controller, the CN values will need to be set.

See
CN1 and CN2 values, page 33 for the required figures.

2. Configure the parameters for zone 1 by doing the following on the controller:
   - Press the menu button
   - Rotate the knob until the installer menu is highlighted and press the knob
   - Enter the installer code **0012** by rotating the knob to change the number and pressing the knob to accept
   - Rotate the knob to select **Installation setup** and press the knob
   - Select **Zone1** and press the knob

3. Set the Zone1 heating parameters.
   • Rotate the knob to highlight **Zone Function1** and press the knob
   The options are as follows:
   • Direct
   • Disable
   • Mixing Circuit
   • Swimming pool
   • High Temperature
   • Fan coil unit
   The factory default setting is Direct.
   Mixing Circuit and Fan coil unit are used for cooling.
   Press the back button to return to the **Zone1** menu.
   • Rotate the knob to highlight **Heating curve** and press the knob
   The following can be set:
   • Max (temp)
   • Gradient
   • Base (temp)
   • Advanced
   Advanced has a sub menu where the following can be set.
   • Zone Heating Curve1
   • Zone HCZP Comfort1
   • Zone HCZP Reduced1
   • MaxZoneTFlowSetpoint1
   Set **Zone Heating Curve1** to between 0.4 and 0.7 (for underfloor heating). Adjust the value to obtain the optimum comfort.
   Set **MaxZoneTFlowSetpoint1** to 40° C. Adjust the temperature as required for optimum comfort.
4. Configure the cooling parameters as follows:
   • Press the menu button
   • Rotate the knob until the installer menu is highlighted and press the knob
   • Enter the installer code **0012** by rotating the knob to change the number and pressing the knob to accept
   • Rotate the knob to select **Installation setup** and press the knob
   • Rotate the knob to select **Heat Pump** and press the knob
   • Rotate the knob to select **Cooling** and press the knob
   • Select **Cooling mode** and press the knob
   The options are as follows:
   • Off
   • Active cooling on
   Rotate the knob and press to select the required option.
5. Set up the backup heater.

5.4 Choice of location

Important
Do not use the pipework or controller housing to move the cylinder. The cylinder must only be moved using the lifting handle.

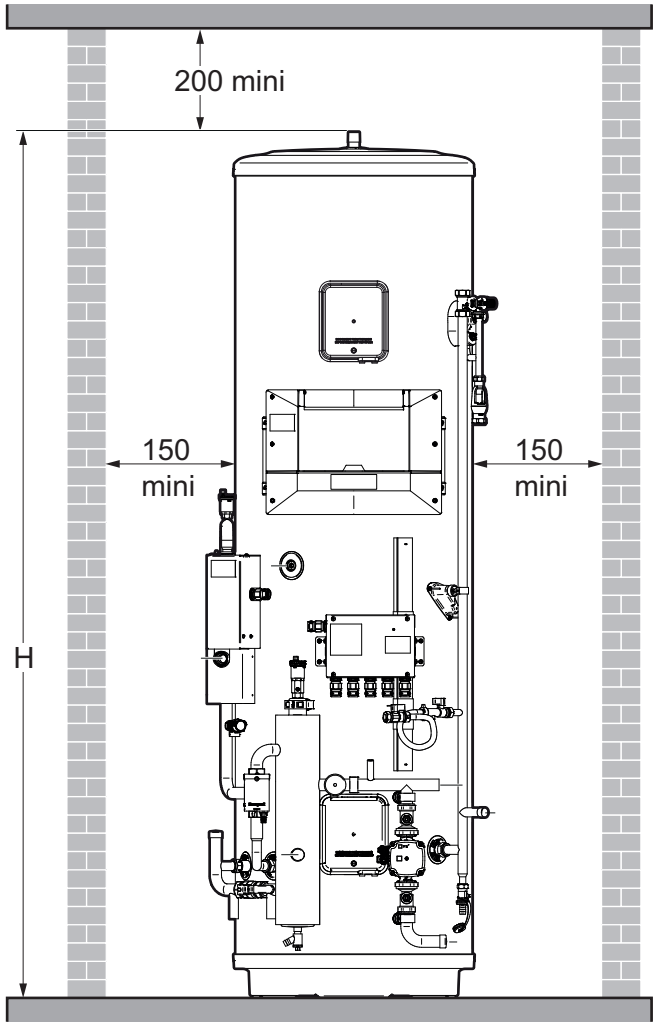
The appliance must be vertically floor mounted. Although location is not critical, the following points must be considered:

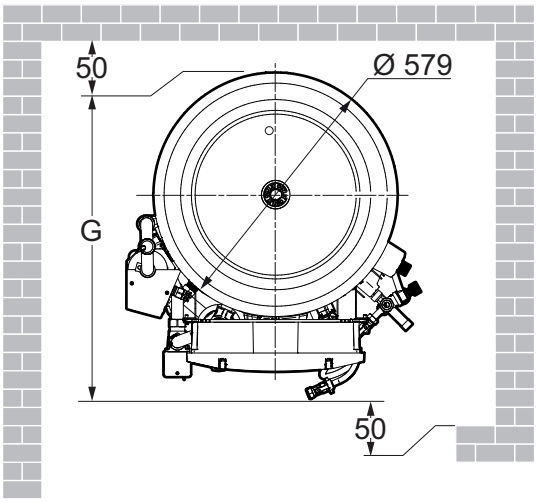
- The appliance must be sited to ensure minimum dead leg distances, particularly to the point of most frequent use.
- Avoid fitting where extreme cold temperatures will be experienced. All exposed pipe work must be insulated.
- The discharge pipe work from the safety valves must have minimum fall of 1:200 from the appliance and terminate in a safe and visible position.
- Access to associated controls and immersion heaters must be available for the servicing and maintenance of the system. Where these controls are installed against a wall, adequate clearances and access must be provided in order to remove any components during a routine maintenance call .
- Note the overall height of the unit in relation to the ceiling height and ensure that space is available for piping/connections to the outlet.
- Ensure that the floor area for the appliance is level and capable of permanently supporting the weight when full of water (see Technical data, page 7 for weights).
- Consideration of the tundish installation location in relation to electrical connections must be given.

5.4.1 Positioning the appliance in a cupboard

Caution
Have 2 people available.
Handle the appliance with gloves.

Fig.8 Clearance





1. Remove the cardboard from the cylinder but leave the cylinder on the shipping pallet.
2. Lift the cylinder and place it in its final position, respecting the distances shown on the diagram

Cylinder	G (mm)	H (mm)
170L	775	1280
210L	775	1516
250L	775	1767
310L	775	2082

5.4.2 Ventilation

Important
Respect the regulations in force regarding natural ventilation of the room.

Where the appliance is installed in a cupboard or compartment, no air vents are required. BS 5440: Part 2 refers to room sealed appliances installed in compartments. The appliance will run sufficiently cool without ventilation.

6 Installation

6.1 General

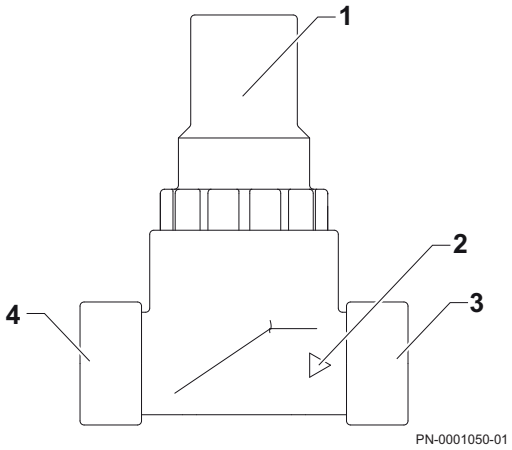
After reading the previous section Before installation, page 12, install the appliance, paying attention to the following water, electrical and commissioning sections.

Important
Do not use the pipework or controller housing to move the cylinder. The cylinder must only be moved using the lifting handle.

6.2 Water connections

6.2.1 Water connections

Fig.9 Cold water controls



1. Pressure reducing valve cartridge (3.5 bar)
2. Direction of flow
3. Outlet connection (22 mm)
4. Cold mains connection (22 mm)

Caution
Flush supply pipe work before connection to remove all residue, dirt or swarf prior to fitting the cold water controls. Failure to do this may result in irreparable damage to the cold water controls. This will invalidate any warranty or claims.

Warning

- Under no circumstances must the factory fitted temperature and pressure relief valve be removed other than by a competent person. To do so will invalidate any warranty or claim.
- If an upstream non-return valve or back flow prevention device is fitted high pressures can be experienced due to ambient temperatures. This can cause damage to the valves and fittings.
- The cold water combination valve assembly must be fitted on the mains water supply to the appliance
- No control or safety valves must be tampered with or used for any other purpose.
- The discharge pipe must not be blocked or used for any other purpose.
- The tundish must not be located adjacent to any electrical components.

Refer to the installation schematic (see, Main Components, page 11) for details on the water connections and cold water controls. Details for the discharge pipe work layout is shown.

- The cold water controls can be connected anywhere on the cold water supply to the appliance.
- The valve(s) can be fitted in any orientation to suit the installation as long as the valve(s) is installed with the direction of flow arrows pointing in the direction of flow to the appliance.
- The safety pressure relief valve must be installed with the discharge pipe work in either horizontally or facing downwards. If fitted inverted, debris may be deposited on the seat of the safety pressure relief valve. This will cause fouling of the seat.
- No other valves must be placed between the cold water controls and the appliance.
- All connections accept 22 mm outside diameter pipe (compression nuts and olives supplied). The thread rate is 3/4" BSP male parallel to accept standard 3/4" BSP female fittings if required.
- An isolation valve (not supplied) must be fitted to enable the appliance to be isolated from the mains water supply for maintenance or servicing.
- The location of the appliance must allow access to the T&PRV to allow re-charging of the internal air gap when necessary.

- It is recommended that the outlet point of the drain pipe work be at least 1 metre below the level of the appliance (this can be achieved by attaching a hose to the drain valve outlet spigot).
- Hot water distribution pipework must be 22 mm pipe with short runs of 15 mm pipe to terminal fittings such as sinks and basins. Pipe sizes may vary due to system design.

6.2.2 Primary circuit control

Primary circuit control

- Primary circulation to the appliance heat exchanger must be pumped, gravity circulation WILL NOT WORK.
- It is recommended that an air bleed or automatic air vent is incorporated in the primary return pipe work. This must be close to the unit.

6.2.3 Discharge

Discharge

It is a requirement of Building Regulation G3 that any discharge from an unvented system is conveyed to where it is visible, but will not cause danger to persons in or about the building. The tundish and discharge pipes should be fitted in accordance with the requirements and guidance notes of Building Regulation G3. The G3 Requirements and Guidance section 3.50 - 3.63 are reproduced in the following sections of this manual. For discharge pipe arrangements not covered by G3 Guidance advice should be sought from your local Building Control Officer. Any discharge pipe connected to the pressure relief devices (expansion valve and temperature and pressure relief valve) must be installed in a continuously downward direction and in a frost free environment.

Water may drip from the discharge pipe of the pressure relief device. This pipe must be left open to the atmosphere. The pressure relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.

■ G3 REQUIREMENT

"...there shall be precautions...to ensure that the hot water discharged from safety devices is safely conveyed to where it is visible but will not cause danger to persons in or about the building."

The following extract is taken from the latest G3 Regulations

Discharge pipes from safety devices

Discharge pipe D1

3.50 Each of the temperature relief valves or combined temperature and pressure relief valves specified in 3.13 or 3.17 should discharge either directly or by way of a manifold via a short length of metal pipe (D1) to a tundish.

3.51 The diameter of discharge pipe (D1) should be not less than the nominal outlet size of the temperature relief valve.

3.52 Where a manifold is used it should be sized to accept and discharge the total discharge from the discharge pipes connected to it.

3.53 Where valves other than the temperature and pressure relief valve from a single unvented hot water system discharge by way of the same manifold that is used by the safety devices, the manifold should be factory fitted as part of the hot water storage system unit or package.

Tundish

3.54 The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the valve, with no more than 600mm of pipe between the valve outlet and the tundish (see Fig.10, page 24).

Note: To comply with the Water Supply (Water Fittings) Regulations, the tundish should incorporate a suitable air gap.

3.55 Any discharge should be visible at the tundish. In addition, where discharges from safety devices may not be apparent, e.g. in dwellings occupied by people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.

Discharge pipe D2

3.56 The discharge pipe (D2) from the tundish should:

(a) have a vertical section of pipe at least 300 mm long below the tundish before any elbows or bends in the pipework (see Fig.10, page 24); and

(b) be installed with a continuous fall thereafter of at least 1 in 200.

3.57 The discharge pipe (D2) should be made of:

(a) metal; or

(b) other material that has been demonstrated to be capable of safely withstanding temperatures of the water discharged and is clearly and permanently marked to identify the product and performance standard (e.g. as specified in the relevant part of BS 7291).

3.58 The discharge pipe (D2) should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9 m long, i.e. for discharge pipes between 9 m and 18 m the equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device; between 18 m and 27 m at least 3 sizes larger, and so on; bends must be taken into account in calculating the flow resistance. See Fig.10, page 24, Tab.6, page 24 and the worked example.

Note: An alternative approach for sizing discharge pipes would be to follow Annex D, section D.2 of BS 6700:2006 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

3.59 Where a single common discharge pipe serves more than one system, it should be at least one pipe size larger than the largest individual discharge pipe (D2) to be connected.

3.60 The discharge pipe should not be connected to a soil discharge stack unless it can be demonstrated that the soil discharge stack is capable of safely withstanding temperatures of the water discharged, in which case, it should:

(a) contain a mechanical seal, not incorporating a water trap, which allows water into the branch pipe without allowing foul air from the drain to be ventilated through the tundish;

(b) be a separate branch pipe with no sanitary appliances connected to it;

(c) if plastic pipes are used as branch pipes carrying discharge from a safety device they should be either polybutylene (PB) to Class S of BS 7291-2:2006 or cross linked polyethylene (PE-X) to Class S of BS 7291-3:2006; and

(d) be continuously marked with a warning that no sanitary appliances should be connected to the pipe.

Note:

1. Plastic pipes should be joined and assembled with fittings appropriate to the circumstances in which they are used as set out in BS EN ISO 1043-1.

2. Where pipes cannot be connected to the stack it may be possible to route a dedicated pipe alongside or in close proximity to the discharge stack.

Termination of discharge pipe

3.61 The discharge pipe (D2) from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge.

3.62 Examples of acceptable discharge arrangements are:

(a) to a trapped gully with the end of the pipe below a fixed grating and above the water seal;

(b) downward discharges at low level; i.e. up to 100 mm above external surfaces such as car parks, hard standings, grassed areas etc. are acceptable providing that a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility; and

(c) discharges at high level: e.g. into a metal hopper and metal downpipe with the end of the discharge pipe clearly visible or onto a roof capable of withstanding high temperature discharges of water and 3m from any plastic guttering system that would collect such discharges.

3.63 The discharge would consist of high temperature water and steam. Asphalt, roofing felt and non-metallic rainwater goods may be damaged by such discharges.

Worked example of discharge pipe sizing

Fig.10, page 24: shows a G1/2 temperature relief valve with a discharge pipe (D2) having 4 No. elbows and length of 7 m from the tundish to the point of discharge.

From Tab.6, page 24:

Maximum resistance allowed for a straight length of 22 mm copper discharge pipe (D2) from a G1/2 temperature relief valve is 9 m.

Subtract the resistance for 4 No. 22 mm elbows at 0.8 m each = 3.2 m

Therefore the permitted length equates to: 5.8 m

5.8m is less than the actual length of 7 m therefore calculate the next largest size.

Maximum resistance allowed for a straight length of 28 mm pipe (D2) from a G1/2 temperature relief valves equates to 18 m.

Subtract the resistance of 4 No. 28 mm elbows at 1.0 m each = 4.0 m

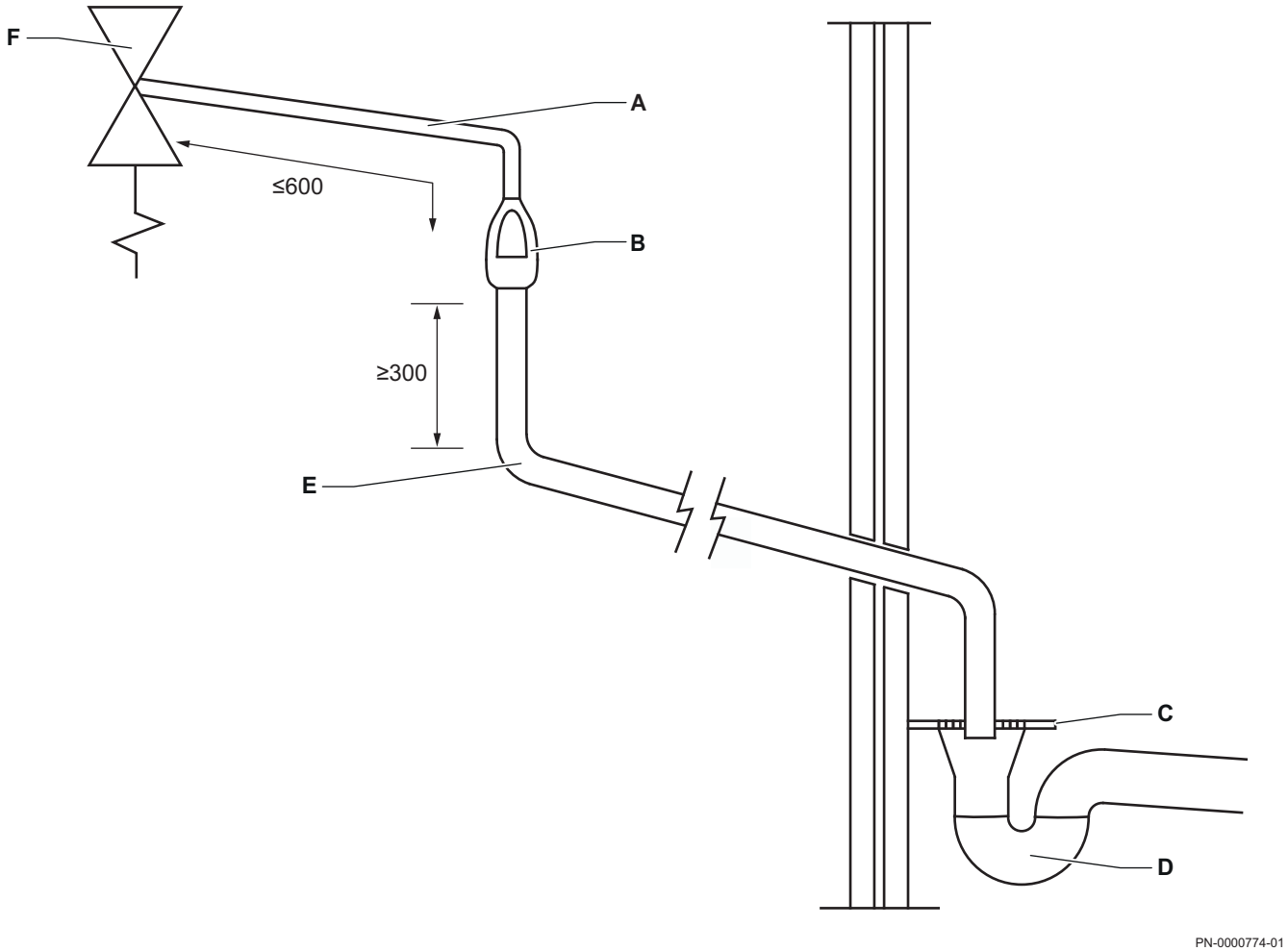
Therefore the maximum permitted length equates to: 14 m

As the actual length is 7 m, a 28 mm (D2) copper pipe will be satisfactory.

Tab.6 Sizing of copper discharge pipe (D2) for common temperature relief valve outlet sizes

Valve outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed, expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by each elbow or bend
G1/2	15 mm	22 mm 28 mm 35 mm	up to 9 m up to 18 m up to 27 m	0.8 m 1.0 m 1.4 m
G3/4	22 mm	28 mm 35 mm 42 mm	up to 9 m up to 18 m up to 27 m	1.0 m 1.4 m 1.7 m
G1	28 mm	35 mm 42 mm 54 mm	up to 9 m up to 18 m up to 27 m	1.4 m 1.7 m 2.3 m

Fig.10 Typical discharge pipe arrangement (extract from building regulations G3 guidance section 3.5)



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Identifier	Description
A	Metal discharge pipe
B	Tundish
C	Fixed grating(1)
D	Trapped gully

Identifier	Description
E	Discharge pipe (D2) from tundish, with continuous fall(2)
F	Safety device (e.g. temperature relief valve)

(1) Building Regulation G3 section 3.56 gives alternative points of discharge.
(2) See Building Regulation G3 section 3.56, Table 1 and worked examples.

6.3 Electrical connections

All electrical wiring must be carried out by a qualified electrician.

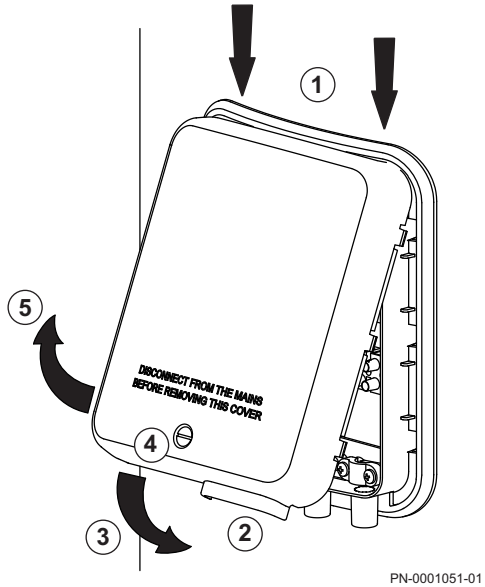
In case of difficulty contact service support. Contact details are available on the back of this booklet.

Warning

- Isolate all electrical supplies before removing any covers.
- Never attempt to replace the immersion heater other than with the recommended immersion heater(s).
- DO NOT bypass the thermal cut-out(s) in any circumstances.
- Ensure the two spade terminations on thermostat and thermal cut-out are pushed firmly onto the corresponding terminations on the element plate assembly.
- All electrical wiring must be carried out by a competent electrician and be in accordance with the latest local/ national electrical regulations.
- Each circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3 mm in both poles.
- DO NOT operate the immersion heaters until the cylinder has been filled with water.

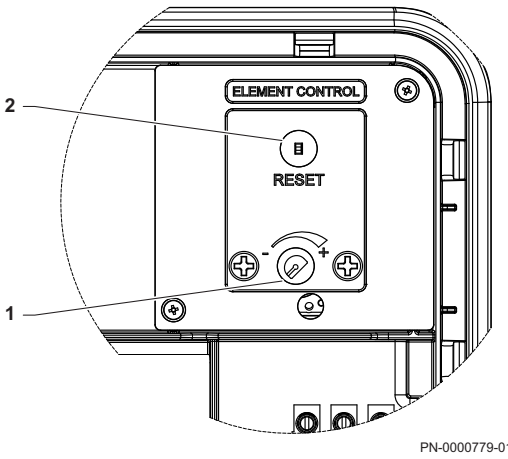
6.3.1 Boost immersion temperature adjustment

Fig.11 Immersion heater cover removal and replacement



1. The immersion heater and controls are accessed by removing the Control Cover.
2. Unscrew the screw (4) on the cover using a flat ended screwdriver.
3. Lift the bottom of the cover at the point indicated (2). Rotate the cover up and away (5) from the housing and remove from the lugs (1).
4. Replace the Control Cover(s) before operating. To do this tilt the cover and align the top two lugs (1) with the holes in the housing as indicated on Fig.11, page 25. Hinge the cover downwards (3) and firmly press the cover until it "snaps" back into place. Secure by tightening the screw (4) on the cover. DO NOT OVER TIGHTEN

Fig.12 Thermostat adjustment



1 Temperature adjusting spindle
2 Thermal cut-out reset button
Minimum temperature
Maximum temperature
Approximately 57 ºC

- Rotate spindle clockwise for temperature increase.
- Rotate spindle counter clockwise for temperature decrease.

6.3.2 Space and heating installation controls

- The controls provided with the cylinder will ensure the safe operation of the unit within the heating installation. Other controls will be necessary to control the space heating requirements and times that the system is required to function.
- The immersion heater is factory set at 57 ºC. If this require adjustment see Fig.12, page 26 for details of how to adjust the temperature setting. The immersion heater has its own individual thermostatic control. The thermostats incorporate a thermal cut-out that will switch off in the event of a thermostat failure. The thermal cut-out reset button position is also shown on Fig.12, page 26.
- Replace the Control Cover(s) before operating, see, Boost immersion temperature adjustment, page 25.
- The cylinder is suitable for using with an OpenTherm controller.

6.3.3 Heat pump water temperature control

Important
In operation the controller fitted to the cylinder, is the master controller. The heat pump become the slave unit for energy production.

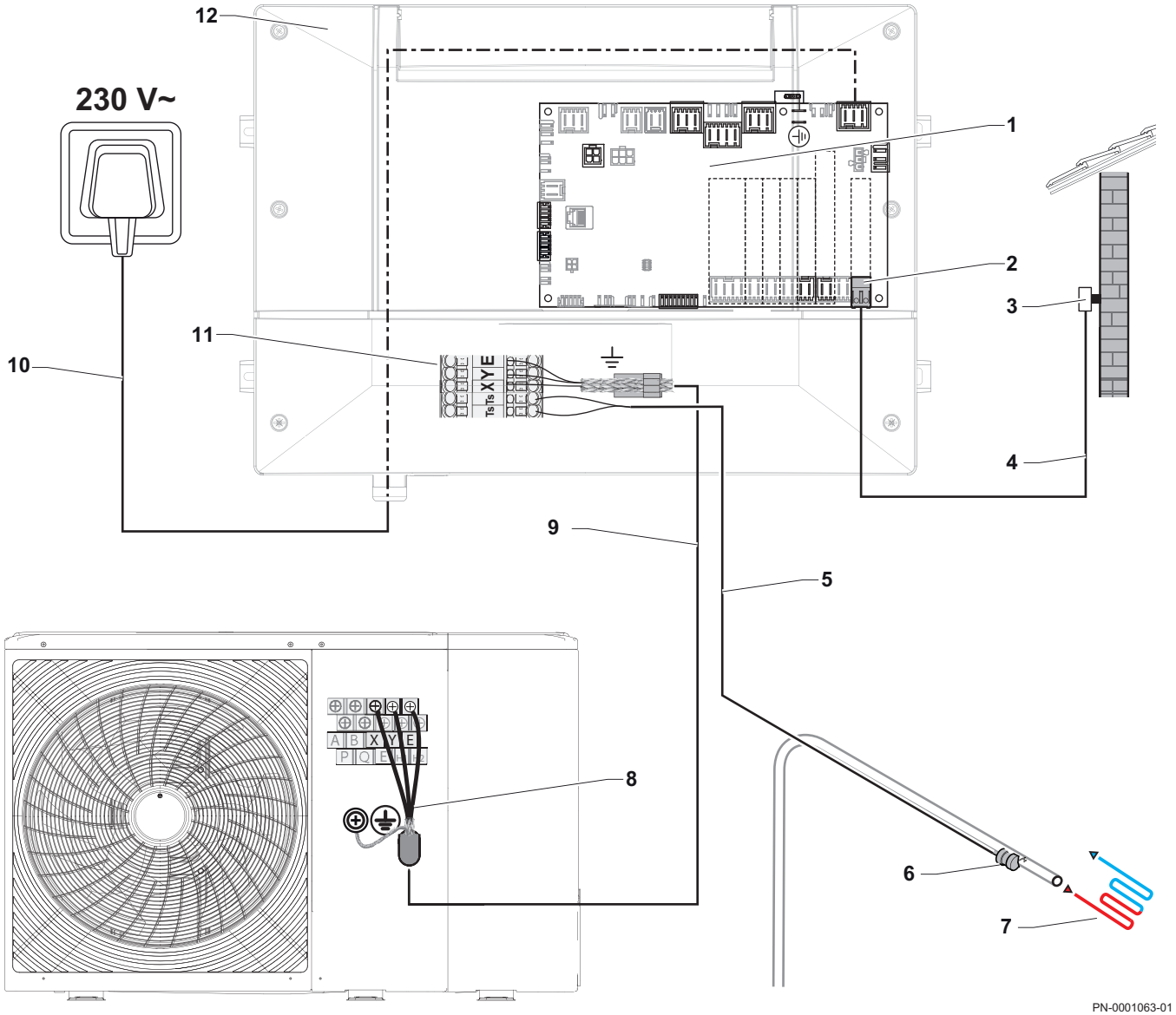
If a heat pump is used to heat the cylinder the immersion heater controls must be set to maximum.

Warning
If the cylinder is used with heat pump controls that contains a sensor to regulate the water temperature. The factory fitted thermostat and thermal cut-out MUST NOT be disconnected or bypassed. This will invalidate the product approvals and warranty. If this method of control is used, the cylinder thermostat must be set at maximum and the heat pump cylinder control temperature set at 60 ºC to avoid the thermostat over-riding the heat pump control.

For further details of wiring the heat pump, consult the heat pump manufacturer’s installation instructions.

6.3.4 Connecting the electrical circuits

Fig.13 Electrical circuit



1 EHC-12
2 Connection block for outdoor temperature sensor (T-OUT)
3 Outdoor temperature sensor
4 Cable 2 x 0.35 mm^2, < 30 m
5 Cable < 15 m
6 Sensor
7 Heating zone
8 BUS
9 Cable 3 x 0.75 mm^2, shielded < 30 m
10 Cable 3 x 0.75 mm^2, 1.5 m long
11 Connector block
12 230 V power supply
13 Controller

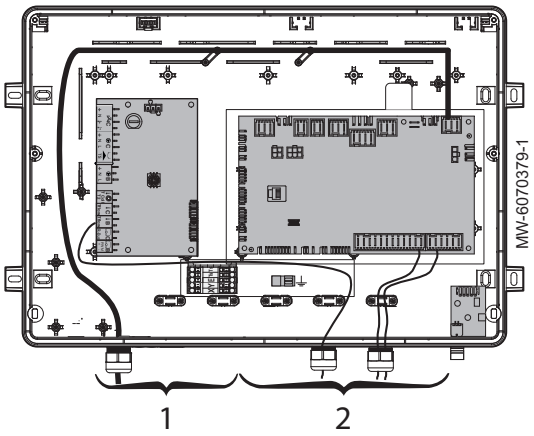
Important
The cable cross-sections are given as a guide only.
Use a shielded cable for the BUS connection between the indoor unit and the outdoor unit to avoid communication problems.

6.3.5 Accessing the controller electrical connections

See
Accessing the indoor unit connectors, page 37 for information on removing the controller covers.

6.3.6 Routing the cables

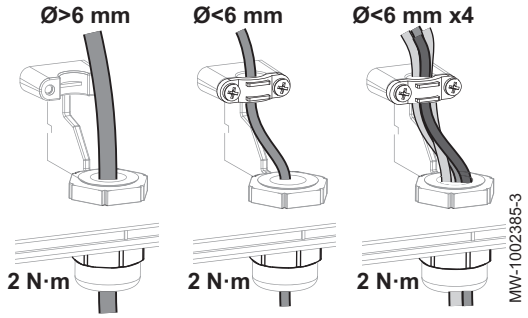
Fig.14



1 230 V power supply cables
2 0 - 40 V signal cables

Important
For cable feedthroughs to the outside, always use the cable glands and cut-outs designed for this purpose.

Fig.15



Use the cable clamps placed upstream of the cable glands when:

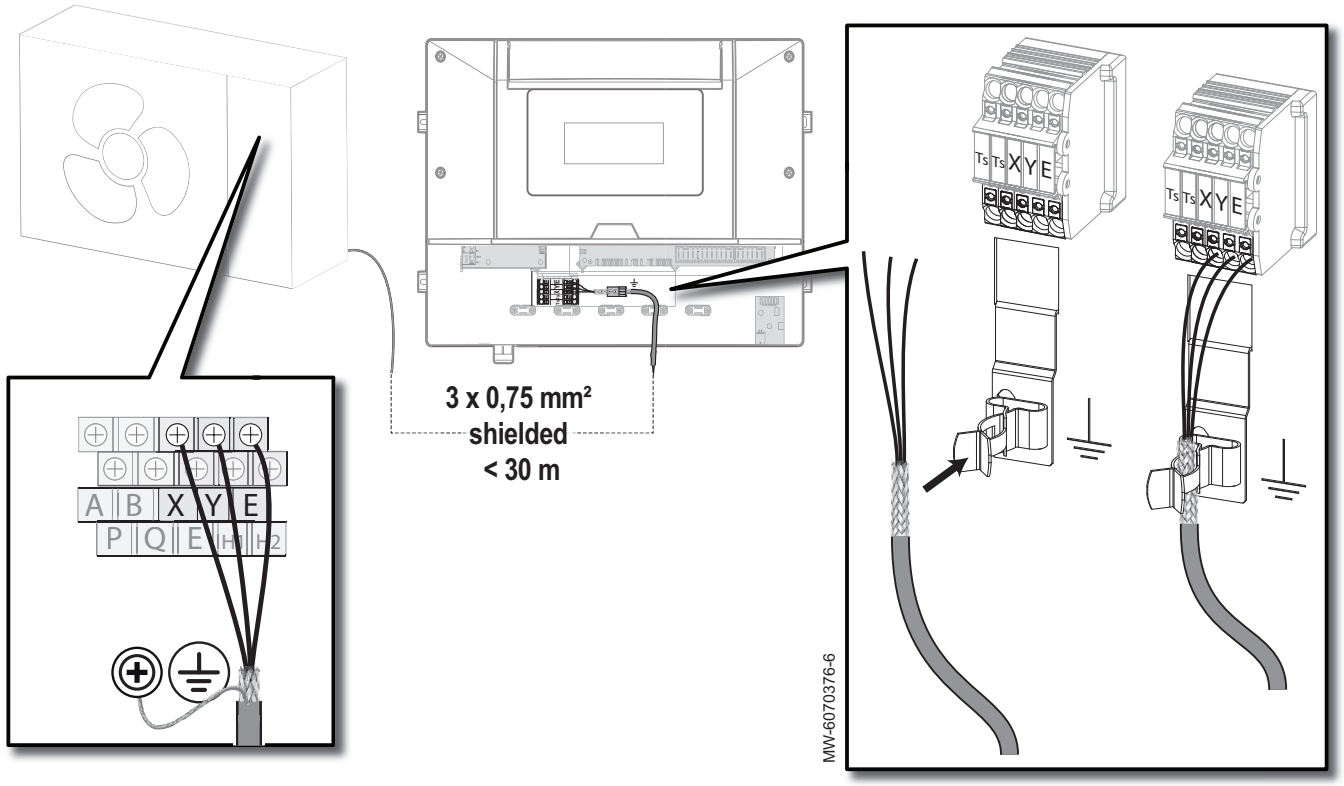
- a cable has a diameter of less than 6 mm
- a cable gland is used for two cables

Important
Cable glands and cable clamps must be used with cables that are free from grease.

Tighten the cable glands to 2 Nm.

6.3.7 Connecting the indoor unit to the outdoor unit

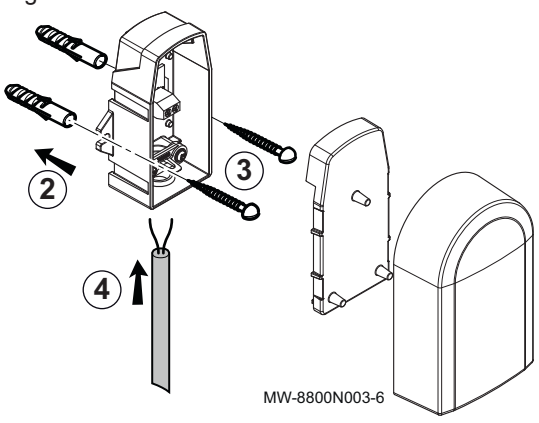
Fig.16



1. Remove the service panel from the outdoor unit.
2. Connect a shielded BUS cable (minimum diameter: 3 x 0.75 mm^2) between the connection block X/Y/E of the outdoor unit and the connection block X/Y/E of the indoor unit.
3. Insert the shielded BUS cable into the ground connection on the indoor unit.
4. Connect the shielding to the earth connection in the outdoor unit.
5. Refit the outdoor unit service panel .

6.3.8 Installing and connecting the AF60 outdoor temperature sensor

Fig.17



Important
The connection of an outdoor temperature sensor is mandatory to ensure the correct position of the appliance.

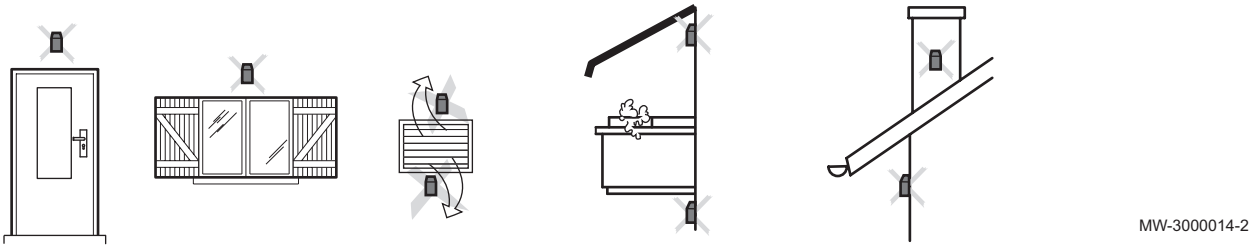
1. Choose a recommended location for the outdoor temperature sensor.
2. Fit the two wall plugs (diameter 6 mm) delivered with the outdoor temperature sensor.
3. Secure the sensor using the screws provided (diameter 4 mm).
4. Connect the cable to the outdoor temperature sensor.

■ Positions to be avoided

Avoid placing the outdoor temperature sensor in a position with the following characteristics:

- Masked by a building element (balcony, roof, etc.).
- Close to a disturbing heat source (sun, chimney, ventilation grille, air flow from outdoor unit, etc.)

Fig.18

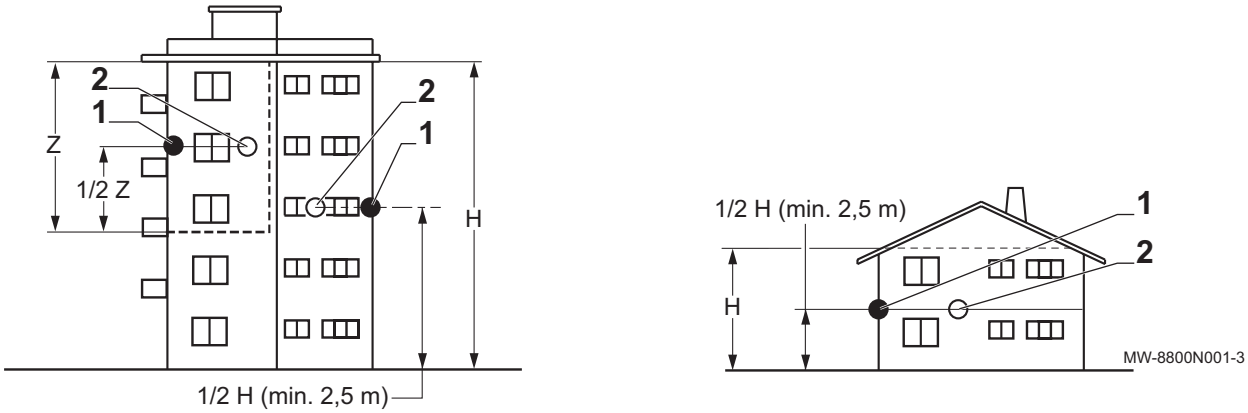


■ Recommended positions

Place the outdoor temperature sensor in a position that covers the following characteristics:

- On a façade of the area to be heated, on the north if possible.
- Minimum of 2.5 meters above ground level.
- Affected by changes in the weather.
- Protected from direct sunlight.
- Easy to access.

Fig.19



1 Optimum location
2 Possible position
H Inhabited height controlled by the sensor
Z Inhabited area controlled by the sensor

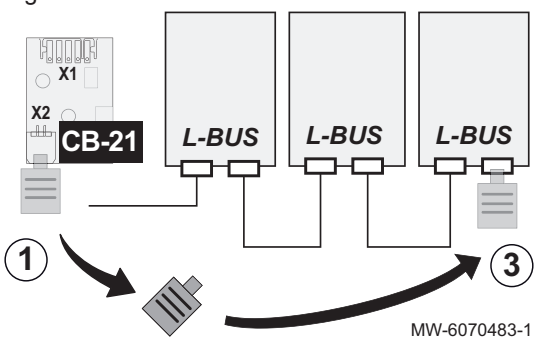
■ Connecting the outdoor temperature sensor

Fig.20

1. Use a cable with a minimum cross section of 2 x 0.35 mm^2 and a maximum length of 30 metres.
2. Connect the outdoor temperature sensor to the **Tout** input on the **X28** connector for the **EHC–04** central unit PCB on the indoor unit.

6.3.9 Connecting the external options

Fig.21



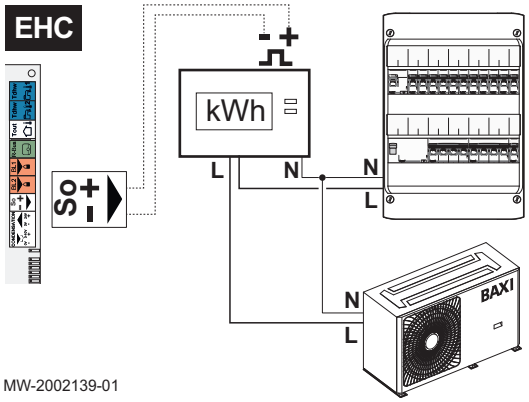
The external options are connected to the **CB-21** external options connection PCB of the indoor unit :

1. Recover the factory-connected L-BUS bus terminator, on the terminal block **X2** on the **CB-21** PCB.
2. Connect the options to form an L-BUS chain from the **CB-21** PCB.
3. Connect the L-BUS bus terminator to the last element in the L-BUS chain.

See
Option installation instructions

6.3.10 Connecting an energy meter

Fig.22



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Connecting an energy meter to the outdoor unit and backup heater power supplies provides an accurate measurement of electric consumption.

- Do not install an energy meter on the power supply of the boost heater.
- Do not install an energy meter on the power supply of the control unit.

1. Choose an EN 62053-31 standard pulse-type energy meter.
2. Connect the energy meter to the power supply of the outdoor unit or backup heater to measure electric consumption. Use a single phase energy meter.
3. Connect the energy meter to the **S0+/S0-** input on the PCB **EHC–12** of the indoor unit for pulse metering.

6.4 Filling the installation

- Ensure the drain valve is CLOSED.
- Open a hot tap furthest from the cylinder.
- Open the mains stopcock.
- Open the isolation valve by turning the blue handle so it is parallel with the direction of flow. It must be fully opened, partial opening will restrict the inlet flow rate.
- Allow the cylinder to fill with water.
- When water flows from the open tap, allow the tap to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close the tap
  .
- Open successive hot taps fed by the appliance to purge the system of air.
- Check all connections and system pipes for any water leaks.

7 Commissioning

7.1 General

After completing filling the installation as described in section Filling the installation, page 31 follow these steps to complete the installation of the appliance.

Warning
DO NOT operate the immersion heaters or primary circuit until the cylinder has been filled with water.

Caution

- When placing the appliance into service, the procedure for filling the appliance (if drained) and the system checks within the commissioning section must be observed.

7.2 Checklist before commissioning

Caution
The following steps must only be performed by a competent person prior to commissioning.

Do the following prior to commissioning:

- Check all water connections for leaks and rectify as necessary.
- Refit all the panels, fascias and covers on the indoor unit and outdoor unit.
- Turn on the outdoor unit circuit breakers on the electrical panel.

7.3 Commissioning procedure

7.3.1 Deaeration

The purpose of the function is to remove as much air as possible from the heating system. It operates automatically on the heat pump cylinder's first power up and lasts approximately 5 minutes.

Important
If during this first commissioning process the power to the heat pump cylinder is interrupted the deaeration function will restart automatically.

Caution
Only the initial deaeration process during commissioning is performed automatically. Any subsequent deaeration carried out, for example after a system drainback, must be done manually.

Caution
If the power is lost to the heat pump cylinder during a manual deaeration the process does NOT restart automatically! Re-establish the power and manually restart the deaeration.

1. Ensure the air vents are open to allow trapped air to escape.
2. Connect the filling loop.
3. Open the filling loop. The system will begin to fill with water.
4. When the pressure gauge reads 1.5 bar close the filling loop.
5. Switch on the controller.
6. Switch on the contactor box.
7. The system will boot up and **welcome** appears on the display.
8. The screen displays **Deaeration in progress** and the deaeration sequence will begin.
9. The system pump and the diverter valve will begin operate.
10. Open the filling loop to top up the system pressure as the pressure begins to drop.
11. Close the filling loop when the pressure reaches 1.5 bar.
12. Repeat until deaeration cycle is complete.
13. Ensure pressure is at 1.5 bar.
14. Ensure the filling loop is closed and disconnected.
15. When the deaeration function is complete the controller will go into standby.

Important
Check the system pressure a few days after installation and ensure the system pressure is 1.5 bar.

7.3.2 Commissioning procedure with smartphone

Caution
Commissioning must only be performed by a qualified professional.

To commission and configure the installation via the **BAXI START** smartphone app, a **Bluetooth®** connection must be established between the smartphone and the heat pump indoor unit. The **Bluetooth®** connection is only possible in one of the following scenarios:

- The indoor unit is factory fitted with the **BLE Smart Antenna** PCB.
- The **GTW-35** service tool is connected to the indoor unit.

1. Download the **BAXI START** application on **Google Play** or on the **App Store**.
2. Activate **Bluetooth®** in the smartphone settings.
3. Start the application.
4. Follow the instructions for the application on the smartphone for commissioning and configuring the heating installation.

Once the procedure is complete, the installation is fully configured. The **Bluetooth®** on the appliance can be deactivated.

Fig.23

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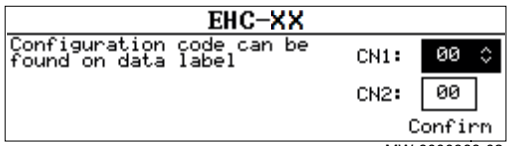
7.3.3 Commissioning procedure without smartphone

Caution
Commissioning must only be performed by a competent person.

Fig.24



MW-6000866-02

1. Set the **CN1** and **CN2** parameters.

See
CN1 and CN2 values, page 33 to locate and identify the required **CN** values.

- The **CN1** and **CN2** parameters indicate the outdoor unit output and the controller configuration.

2. Select country and language.
3. Configure date and hour.
4. Configure the summer/winter time function.
5. Select **Confirm** to save the settings.
6. The heat pump begins its deaeration cycle.

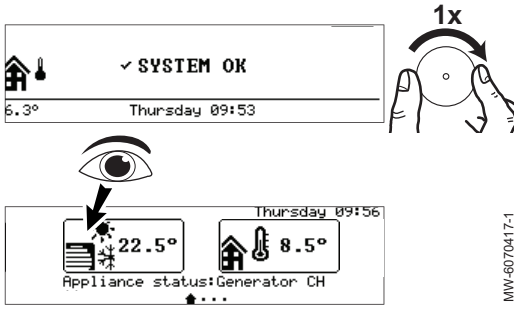
Points to check:

- Read the flow temperature.

Check the flow temperature if the heat pump does not start at the end of the vent cycle.

The flow temperature must be above 10 °C to enable the outdoor unit to start. This protects the condensing heat exchanger during defrosting.

Fig.25



MW-6070417-1

Important
If the flow temperature is below 10 °C, the backup heater starts instead of the outdoor unit.
The outdoor unit takes over when the flow temperature reaches 20 °C.

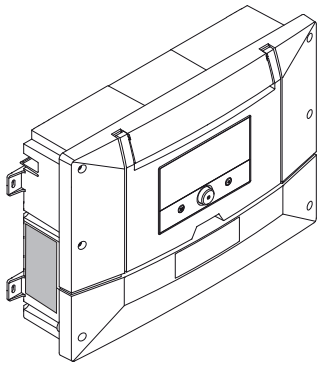
7.3.4 Boost immersion

1. Switch on electrical supply to the immersion heater(s) and allow the cylinder to heat up to the normal working temperature, (60 ℃ - 65 ℃ recommended). Refer to Technical data, page 7 for heat up times.
2. The temperature can be adjusted by inserting a flat bladed screwdriver into the adjustment spindle on the front of the immersion heater (ELEMENT) control thermostat (see Fig.12, page 26). The adjustment represents a temperature range of 10 °C to 70 °C.
3. Check the operation of the thermostat(s).
4. Check that no water has discharged from the safety pressure relief valve or the temperature and pressure relief valve.

7.4 CN1 and CN2 values

The **CN1** and **CN2** parameters are used to configure the heat pump. This is based on the output of the installed outdoor unit.

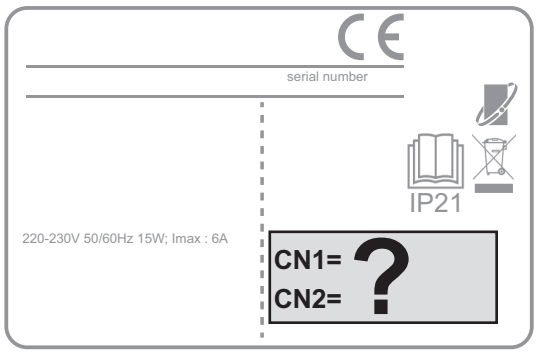
Fig.26 Data label



PN-0001044-01

The data plate contains a list of CN values for all heat pump models.

Fig.27 Data plate CN values



MW-6070424-1

Only the **CN1** and **CN2** values shown on the data plate are valid.

Tab.7 CN 1 and CN2 values

Output of the outdoor temperature sensor	CN1	CN2
HP40-4-1PHMB	7	7
HP40-5-1PHMB	8	7
HP40-7-1PHMB	9	7
HP40-8-1PHMB	10	7
HP40-11-1PHMB	11	7
HP40-13-1PHMB	12	7

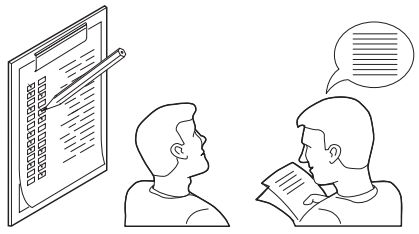
The values can be updated at any time if required.

- Do the following to modify the values:
  - Press the menu button.
  - Rotate the knob until the installer menu icon is highlighted.
  - Press the knob.
  - Enter the code required for the installer menu **0012** by rotating and pressing the knob to display and accept the correct numbers.
  - Rotate the knob until **advanced menu** is highlighted.
  - Press the knob.
  - Rotate the knob until **set configuration code** is highlighted.
  - Press the knob.
  - **EHC-12** will be highlighted.
  - Press the knob.
  - Rotate the knob to highlight the required **CN** value.
  - Press the knob.
  - Rotate the knob until the required value is displayed.
  - Press the knob to accept the value.

7.5 Final instructions

7.5.1 Handover

Fig.28 People



PN-0000333

1. This publication must be handed to the user for safe keeping and each subsequent regular service visit recorded.
2. Hand over the Quick Start Guide and Installation and Servicing Instructions, giving advice on the necessity of regular servicing.
3. It is necessary to complete a "Declaration of Conformity" to indicate compliance with the required regulations.
4. Set the heating and hot water temperatures to the requirements of the user. Instruct the user in the operation of the system.
5. Instruct the user in the operation of the controls.
6. Show the user the location of the system control isolation switch, and demonstrate its operation.

8 Operation

8.1 General

Warning

- If water discharges from the Temperature & Pressure relief valve (if fitted) on the cylinder shut down the heat source and/or switch off the immersion heater(s). DO NOT turn off the water supply.
- Contact a competent installer for unvented water heaters to check the system.
- DO NOT tamper with any of the safety valves fitted to the system. If a fault is suspected contact a competent installer.
- Disconnect from the mains electrical supply before removing any covers.
- DO NOT bypass the thermal cut-out(s) in any circumstances.
- Water stored at temperatures in excess of 60 °C can scald. Consideration to blend down water delivery temperatures at the point of use to a safe level must be given
- All electrical wiring must be carried out by a competent electrician and be in accordance with the latest local/ national electrical regulations.

Boost immersion heater

A boost immersion heater is also provided if the heat pump cannot provide water at the required temperature. The boost immersion heater control temperature is set using the immersion heater thermostat (see Boost immersion temperature adjustment, page 25).

Temperature controls – boost immersion heater(s)

- A combined thermostat and thermal cut-out is provided for each immersion heater fitted. The thermostat is factory set to give a water storage temperature of approx. 57 °C, however it can be set to control between 10 °C and 70 °C. This will usually have been done during installation and commissioning.
- Access to the thermostat can be made by opening the controls housing cover.

Warning
Isolate the electrical supply before opening the cover (s).

- Temperature adjustment is made by rotating the adjustment knob on the top of the thermostat. The adjustment represents a temperature range of 10 °C to 70 °C (see Boost immersion temperature adjustment, page 25).
- Maximum working temperature is 70 °C. In very hard water areas limit to 60 / 65 °C to minimise the build up of limescale on the immersion heater element surfaces.

Warning
DO NOT bypass the thermal cut-out(s) under any circumstances.

Flow performance

When initially opening hot water outlets, a small surge in flow may be noticed as pressures stabilise. This is quite normal with unvented systems. In some areas cloudiness may be noticed in the hot water. This is due to aeration of the water, is quite normal and will quickly clear.

Operational faults

Operational faults and their possible causes are detailed in the Fault Finding section of this book (see Fault finding, page 42). It is recommended that faults must be checked by a competent installer

9 Maintenance

9.1 General

9.1.1 Maintenance requirements

The maintenance checks described below must be performed by a competent person on a regular basis. Ideally this will take place annually to coincide with boiler maintenance.

9.2 Standard inspection and maintenance operations

9.2.1 Inspection

The immersion heater boss can be used as an access for inspecting the cylinder internally.

9.2.2 Safety pressure relief valve operation

Caution
Water discharged may be very hot!

1. Manually operate the temperature/pressure relief valve for a few seconds.
2. Check water is discharged and that it flows freely through the tundish and discharge pipework.
3. Non-return valve reseats correctly when released.
4. Repeat the above procedure for the safety pressure relief valve.

9.2.3 Descaling immersion heater(s)

1. Turn off the mains water supply, isolate the electrical supply and turn off the primary heat source.
2. Attach a hosepipe to the drain valve. Ensure it is of sufficient length to take water to a suitable discharge point below the level of the unit.
3. Open a hot tap close to the unit and open drain valve to drain unit.
4. Open the cover(s) to the immersion heater housing(s) and disconnect wiring from immersion heater(s) thermostat(s).
5. Unscrew the immersion heater and withdraw the immersion heater from the cylinder. Take care when lifting the immersion heater out of the cylinder and work within safe working practices.
6. Carefully remove any scale from the surface of the element(s).

Caution
DO NOT use a sharp implement as damage to the element surface could be caused.

7. Ensure sealing surfaces are clean and seals are undamaged, if in doubt fit a new immersion heater gasket. (spare part number 77 029 35)
8. Replace immersion heater(s), making sure not to trap the immersion heater gasket.
9. Rewire, check, close and secure immersion heater housing cover(s).

9.2.4 Re-commissioning

1. Check all electrical and plumbing connections are secure.
2. Close the drain valve.
3. With a hot tap open, turn on the cold water supply and allow unit to refill.

Warning
DO NOT switch on the immersion heater or boiler until the unit is full.

4. When water flows from the hot tap allow to flow for a short while to purge air and flush through any disturbed particles.
5. Close hot tap and then open successive hot taps in system to purge any air.
6. When completely full and purged check system for leaks.
7. The heating source (immersion heater or boiler) can then be switched on.

9.2.5 Expansion vessel charge pressure

The expansion vessel pressure will periodically require checking and charging.

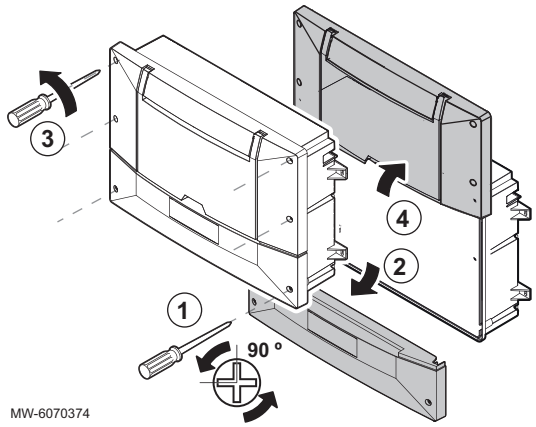
To charge the expansion vessel pressure:

1. Isolate cold mains supply and open hot tap to reduce cylinder pressure.
2. Remove the dust cap on top of the vessel.
3. Check the pressure vessel charge.
4. When correct replace the dust cap.
5. Re-instate mains water supply.

9.3 Specific maintenance operations

9.3.1 Accessing the indoor unit connectors

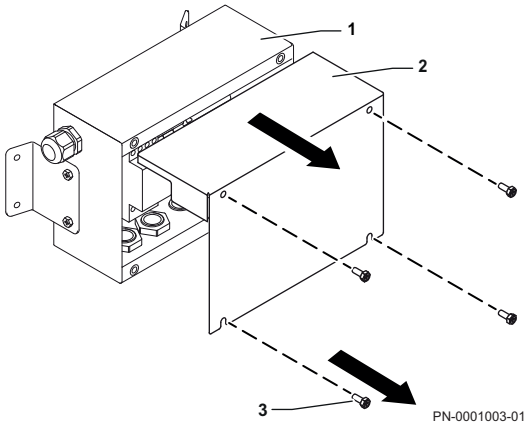
Fig.29



1. Unscrew the 2 screws on the front lower cover by a quarter turn.
2. Take off the front lower cover.
3. Unscrew the 4 screws on the front upper cover.
4. Position the front upper cover in the maintenance position.
   ⇨ The connectors for the printed circuit boards are now accessible.

9.3.2 Removing the front panel

Fig.30 Removing the front panel



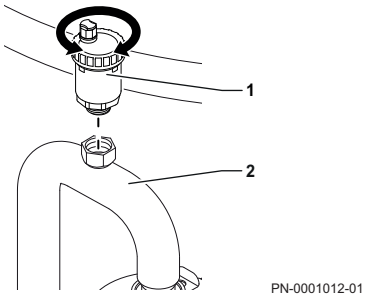
Warning
When accessing the inside of the appliance ensure the electrical supply is isolated before any work is started.

To remove the front panel proceed as follows:

1. Remove the four screws on the front of the contactor box.
2. Lift the front cover upwards off the housing .

9.3.3 Replacing the automatic air vent (backup heater)

Fig.31 Replacing the air vent



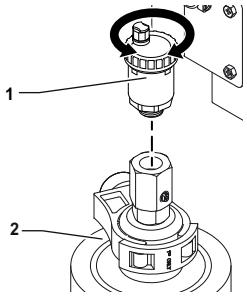
1. Isolate the water supply.

Warning
The filling loop water supply must be isolated and disconnected before removing the air vent.

2. Open the drain valve on the low loss header and drain the system.
3. Check the pressure gauge reads zero.
4. Unscrew the air vent using suitable tools.
5. Install new air vent.
6. Ensure the air vent is open.
7. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
8. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
9. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
10. Check the pipework for leaks.

9.3.4 Replacing the automatic air vent (low loss header)

Fig.32 Replacing the air vent



PN-0001052-01

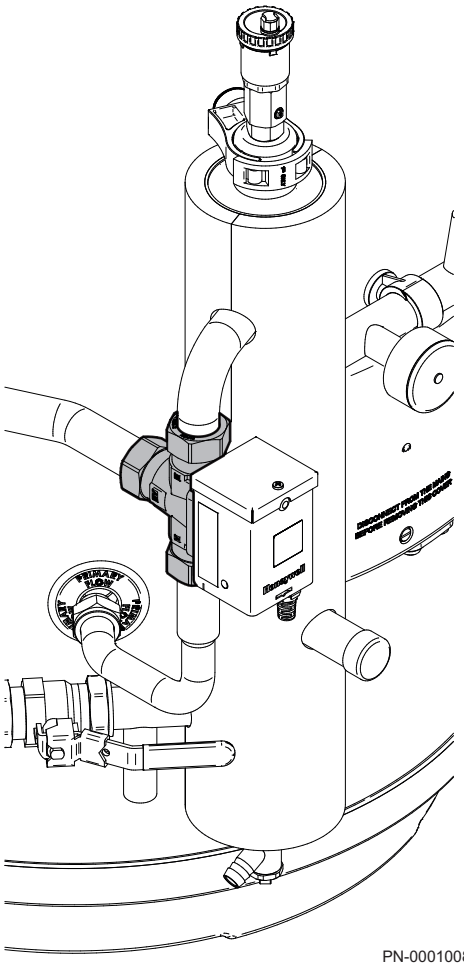
1. Isolate the water supply.

Warning
The filling loop water supply must be isolated and disconnected before removing the air vent.

2. Open the drain valve on the low loss header and drain the system.
3. Check the pressure gauge reads zero.
4. Unscrew the air vent using suitable tools.
5. Install new air vent.
6. Ensure the air vent is open.
7. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
8. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
9. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
10. Check the pipework for leaks.

9.3.5 Replacing the diverter valve

Fig.33 Replacing the diverter valve



PN-0001008-01

Warning
The filling loop water supply must be isolated and disconnected before removing the diverter valve.

Warning
The electrical supply to the contactor box must be isolated before removing the diverter valve

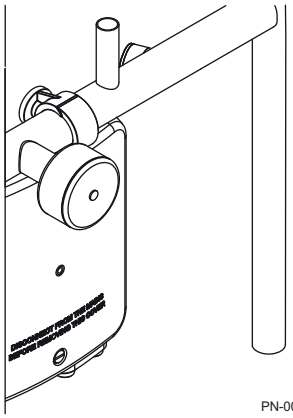
1. Isolate the water supply.
2. Open the drain valve on the low loss header and drain the system.
3. Check the pressure gauge reads zero.
4. Disconnect the earth, live and neutral in the contactor box.

See
Removing the front panel, page 37 for information on accessing the contactor box front panel .

5. Unscrew the cable gland and remove the cable from the control unit.
6. Unscrew the three pipe nuts using suitable tools.
7. Remove the diverter valve.
8. Reverse the above steps to fit a new diverter valve.
9. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
10. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
11. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
12. Check the pipework for leaks.

9.3.6 Replacing the pressure gauge

Fig.34 Replacing the pressure gauge



PN-0001009-01

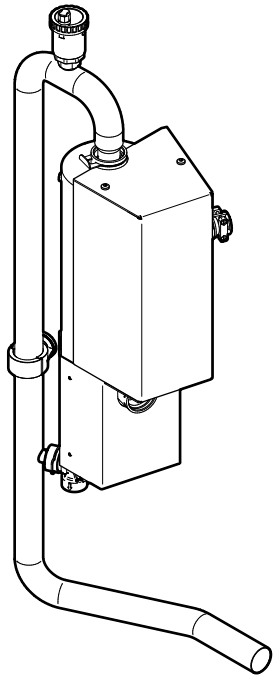
1. Isolate the water supply

Warning
The filling loop water supply must be isolated and disconnected before removing the pressure gauge.

2. Open the drain valve on the low loss header and drain the system.
3. Unscrew the pressure gauge using suitable tools
4. Fit new pressure gauge
5. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
6. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
7. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
8. Check the pipework for leaks

9.3.7 Replacing the backup heater

Fig.35 Replacing the backup heater



PN-0001011-01

Warning
The filling loop water supply must be isolated and disconnected before removing the backup heater.

Warning
The electrical supply to the contactor box must be isolated before removing the backup heater

1. Isolate the water supply.
2. Open the drain valve on the low loss header and drain the system.
3. Check the pressure gauge reads zero.
4. Disconnect the earth and neutral in the contactor box.

See
Removing the front panel, page 37 for information on accessing the contactor box front panel .

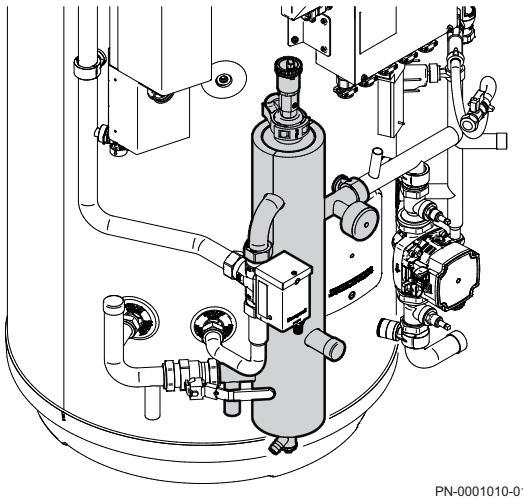
5. Remove the backup heater covers.
6. Disconnect the live from the overheat thermostat.
7. Disconnect backup heater inlet pipe from diverter valve.
8. Remove clip on top of backup heater inlet pipe connection. Note orientation of clip.
9. Unscrew heat pump inlet pipe.
10. Remove temperature sensor.
11. Unscrew the two nuts on the front of the bracket
12. Remove the two earth wires.
13. Remover heater from housing.
14. Reverse the above steps to fit a new backup heater.

Important
Ensure the two earth wires are attached correctly.

15. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
16. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
17. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
18. Check the pipework for leaks.

9.3.8 Replacing the low loss header

Fig.36 Replacing the low loss header



PN-0001010-01

Warning
The filling loop water supply must be isolated and disconnected before removing the low loss header.

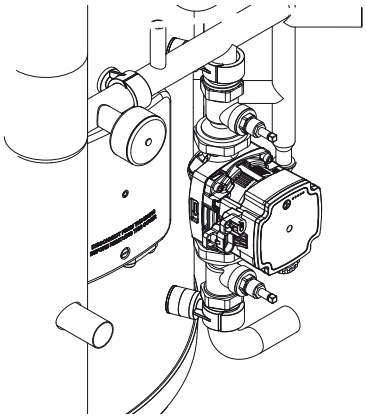
1. Isolate the water supply.
2. Open the drain valve on the low loss header and drain the system.
3. Check the pressure gauge reads zero.
4. Disconnect the lock-out ball valve from the low loss header pipe
5. Remove the ball valve, pipework and magnetic filter
6. Remove the automatic air vent
7. Disconnect the diverter valve
8. Remove the pressure gauge

See
Replacing the pressure gauge, page 39 for instructions on removing the pressure gauge.

9. Disconnect the upper pump union valve
10. Open the pipe clip
11. Remove the low loss header
12. Reverse the above steps to fit a new low loss header
13. Attach the filling loop and open the water supply. Air will begin to escape from the air vent.
14. When air has escaped from the system check the pressure gauge to ensure the pressure is increasing.
15. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
16. Check the pipework for leaks

9.3.9 Replacing the pump

Fig.37 Replacing the pump



PN-0001007-01

Warning
The electrical supply to the controller must be isolated before removing the pump.

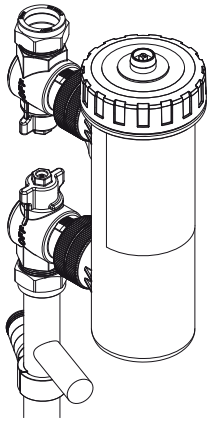
1. Close the upper and lower valves
2. Disconnect the power and PWM connectors
3. Unscrew the valves using suitable tools

Caution
Beware of water escaping from the pump

4. Remove the pump
5. Reverse the above steps to fit a new pump
6. Attach the filling loop and open the water supply.
7. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.
8. Check all pipework for leaks

9.3.10 Replace/clean the magnetic filter (if fitted)

Fig.38 Removing the magnetic filter



PN-0001013-01

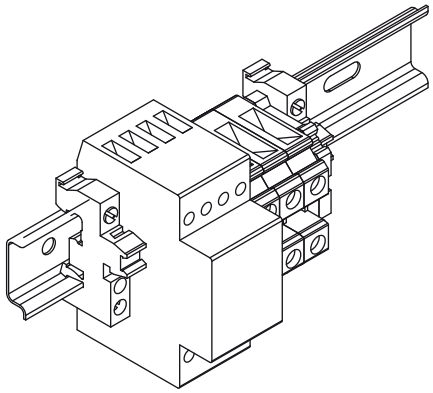
Warning
The filling loop water supply must be isolated and disconnected before removing the magnetic filter.

1. Close the upper and lower taps on the magnetic filter so that the red indicator is displayed.
2. Vent some of the pressure from the filter.
3. Use the supplied tool to undo the top of the filter.
4. Remove the filter checking for any damage.
5. Thoroughly clean the filter in clean running water.
6. Check for damage and replace if required.
7. Reverse the above steps to fit the filter.
8. Open the upper and lower taps on the magnetic filter so that the green indicator is displayed.
9. Check the system pressure on the pressure gauge.
10. If the pressure is low, attach the filling loop and open the water supply.
11. When the pressure gauge reaches 1.5 bar turn off the water supply and disconnect the filling loop.

9.3.11 Replace the contactor

Danger
The electrical supply must be isolated from the appliance before removing the front panel.

Fig.39 Replace the contactor



PN-0001003-01

To replace the contactor:

1. Remove the contactor box front panel.

See
Removing the front panel, page 37 for more information.

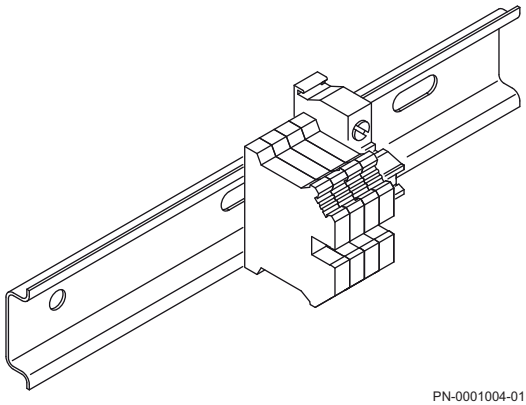
2. Remove all cables from the contactor.
3. Pull the tab at the back of the contactor downwards.
4. Remove the contactor from the mounting rail.
5. Reverse the steps above to install the new contactor.
6. Fit the contactor box front panel.
7. Switch on the electrical supply.

9.3.12 Replace the connector block

Danger
The electrical supply must be isolated from the appliance before removing the front panel.

There are two types of connector block fitted to the mounting bar. Each has a different method of removal as described below.

Fig.40 Replacing the connector block



PN-0001004-01

To replace the earth connector block:

1. Remove the contactor box front panel.

See
Removing the front panel, page 37 for more information.

2. Remove all cables from the connector block.
3. Loosen the screw in the centre of the connector block.
4. Hold the connector block, pull forward and rotate upwards to remove the connector block from the mounting rail.
5. Reverse the steps above to install the new connector block.
   To replace the neutral connector blocks:
6. Remove all cables from the connector block.
7. Hold the connector block, pull forward and rotate upwards to remove the connector block from the mounting bar.
8. Reverse the steps above to install the new connector block.
9. Fit the contactor box front panel.
10. Switch on the electrical supply.

10 Troubleshooting

10.1 Fault finding

Important

- Servicing must only be carried out by competent persons in the installation and maintenance of unvented water heating systems.
- Any spare parts used MUST be authorised parts.
- Disconnect the electrical supply before removing any electrical equipment covers.
- NEVER bypass any thermal controls or operate system without the necessary safety valves.
- Water contained in the cylinder may be very hot, especially following a thermal control failure. Caution must be taken when drawing water from the unit.

Tab.8 Fault finding chart

Fault	Possible cause	Remedy
No hot water	Mains water supply off.	Check and open stop cock.
	Strainer blocked.	Turn off water supply. Remove strainer and clean .
	Pressure reducing valve incorrectly fitted.	Check and refit as required.
Water from hot taps is cold	Back up immersion heater not switched on	Check and switch on.
	Back up immersion heater thermal cut-out has tripped.	Check. Reset by pushing button Fig.12, page 26.
	Indirect programmer set to central heating only	Check. Set programmer to a hot water programme.
	Heat pump not working.	Check heat pump operation. If fault is suspected consult manufacturers instructions
	Heat pump cut-out has tripped.	Check. Reset by pushing button. Check operation of thermostat Fig.12, page 26.
	Motorised valve not connected correctly	Check wiring and/or plumbing connections to motorised valve .
Water discharges from expansion relief valve	Intermittently.	See Expansion vessel charge pressure, page 36 for details on how to test and recharge
	Continually. 3 bar pressure reducing valve is not working correctly	Check pressure from 3 bar pressure reducing valve. If greater than 3 bar replace pressure reducing cartridge
	Continually. Expansion relief valve seat damaged	Remove expansion relief cartridge from 6 bar pressure relief valve and check seating, if necessary fit new cartridge

Fault	Possible cause	Remedy
Water discharges from the T&P valve	8 bar expansion relief valve faulty	See Expansion vessel charge pressure, page 36 for details on how to test and recharge
		non-return valve and replace if necessary
Water discharges from the T&P valve continually	Thermal control failure. Note water will be very hot	Switch off power supply to immersion heater(s) and shut down the heat pump. DO NOT turn off the water supply. When discharge stops check all thermal controls, replace if faulty
Milky water	Oxygenated water	Water from a pressurised system releases oxygen bubbles when flowing. The milkiness will disappear after a short while

Spare parts
A full range of spare parts are available for the cylinder range Tab.9, page 43. Refer to the technical data label on the unit to identify the model installed. Ensure the correct part is ordered. You will need to quote the serial number, which is printed on the data label.

11 Decommissioning

11.1 Decommissioning procedure

1. Isolate electrical supplies and make safe
2. Isolate the water supply
3. Drain the cylinder
4. Drain the primary circuit (if required)
5. Remove cylinder
6. Cap pipework

12 Spare parts

12.1 Exploded views

Fig.41 Controls - exploded view

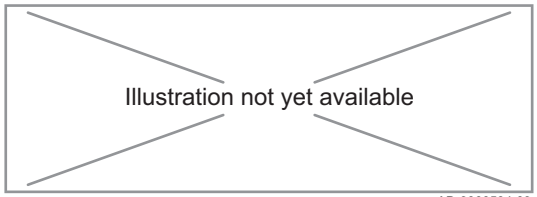
AD-3000584-03

Tab.9 Controls

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
1	7745491	CONTROLS COVER - WHITE INC SCREW	1	X	X	X	X
2	95606984	IMMERSION HEATER -LOWER 170L	1	X			
3	95606986	IMMERSION HEATER - UPPER 210L - 300L	1		X	X	X
4	95605132	IMMERSION HEATER BACK-NUT	1	X	X	X	X
5	95607861	IMMERSION HEATER KEY SPANNER	1	X	X	X	X
6	7702935	IMMERSION HEATER GASKET	1	X	X	X	X
7	95607064	SENSOR POCKET ASSEMBLY 170L	1	X			
8	95970025	SENSOR POCKET ASSEMBLY 210L - 300L	1		X	X	X
9	7890813	6 WAY TERMINAL BLOCK 170L	1	X			
10	7890814	3 WAY TERMINAL BLOCK 210L - 300L			X	X	X
11	95612720	THERMOSTAT	1	X	X	X	X
12	95612698	THERMAL CUT OUT	1		X	X	X
13	7890816	MOUNTING PLATE - THERMAL CUT OUT 170L	1	X			

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
14	7890818	MOUNTING PLATE - THERMAL CUT OUT - LOWER 210L - 300L	1		X	X	X
15	7890821	MOUNTING PLATE - THERMOSTAT - UPPER 210L -300L	1		X	X	X

Fig.42 Backup Heater



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Tab.10 Backup Heater

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
16	7890824	COVER BACKUP HEATER - TOP	1	X	X	X	X
16A	7214224	SCREW - 4.2X13 (PACK OF 10)	1	X	X	X	X
17	7890827	HEATER BRACKET ASSY	1	X	X	X	X
17A	7890829	GROMMET/ NUT PACK	1	X	X	X	X
18	7891072	THERMOSTAT- BACKUP HEATER ASSY	1	X	X	X	X
19	7891073	TERMINAL BLOCK INC SCREWS	1	X	X	X	X
20	7891074	RETAINING PIN AND TUBE	1	X	X	X	X
21	7891075	COVER BACKUP HEATER - BOTTOM	1	X	X	X	X
21A	7214224	SCREW - 4.2X13 (PACK OF 10)	1	X	X	X	X
22	7891129	INSULATION - BACKUP HEATER	1				
23	7891130	HEATER ASSY 3KW INC INSULATION	1				
24	7891131	CABLE GLAND INC NUT	1				
60	7893162	COVER BACKUP HEATER - TOP	1	X	X	X	X

Fig.43 Control Box

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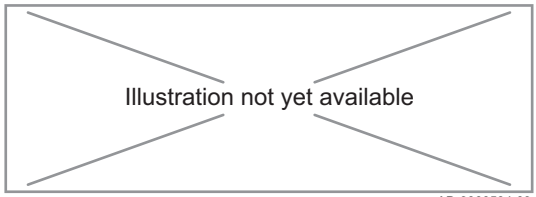
Tab.11 Control Box

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
44	7891185	COVER - CONTACTOR BOX	1	X	X	X	X
44A	670023	SCREW M5x12 HEX HD POZI ZnPD	1	X	X	X	X
44B	238609BAX	RIVET NUT 5mm M.STEEL	1	X	X	X	X
45	Same as key 24	CABLE GLAND INC NUT	1	X	X	X	X
46	7891187	G25A CONTACTOR	1	X	X	X	X
47	7891189	TERMINAL BLOCK SCRW4UGY	1	X	X	X	X
48	7891191	TERMINAL BLOCK SCRW4UBU	1	X	X	X	X
49	7891192	EARTH TERM BLOCK 6MM	1	X	X	X	X
50	7891193	END CLAMP	1	X	X	X	X
51	7891203	CONTACTOR BOX ASSY INC BRACKETS	4	X	X	X	X

Fig.44 Low loss header



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Tab.12 Low loss header

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
52	7891208	LOW LOSS HEADER	1	X	X	X	X
52A	95607838	NUT & OLIVE PACK (4 OF EACH)	1	X	X	X	X
52B	7891209	INSULATION - LOW LOSS HEADER	1	X	X	X	X

Fig.45 Wiring

AD-3000584-03

Tab.13 Wiring

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
54	7891213	DIVERTER VALVE CONTROL HARNESS 170L	1	X			
54A	7891214	DIVERTER VALVE CONTROL HARNESS 210L & 300L	1		X		X
54B	7891215	DIVERTER VALVE CONTROL HARNESS 250L	1			X	
55A	7891217	PUMP POWER HARNESS 170L & 300L	1	X			X
55B	7891218	PUMP POWER HARNESS 210L & 250L	1		X	X	
56	7891219	CYLINDER OVERHEAT TO CONTACTOR BOX	1	X	X	X	X
57	7891220	CONTROL TO CONTACTOR BUH 170L	1	X			
57A	7891221	CONTROL TO CONTACTOR BUH 210L & 300L	1		X		X
57B	7891222	CONTROL TO CONTACTOR BUH 250L	1			X	
58	7891223	CONTACTOR TO BACKUP HEATER	1	X	X	X	X
59	7891225	INTERNAL BACKUP HEATER LIVE LINK	1	X	X	X	X
	7895781	EARTH HARNESS CONTACTOR BOX TO COVER	1	X	X	X	X
	7895784	EARTH HARNESS CONTACTOR BOX TO EARTH TERMINAL	1	X	X	X	X

Fig.46 Diverter valve

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Tab.14 Diverter Valve

Ref.	Part Number	Description	Quantity	170L	210L	250L	300L
	7893162	COVER DIVERTER VALVE	1	X	X	X	X

13 Environmental

13.1 Environmental information

Products are manufactured from many recyclable materials. At the end of their useful life they should be disposed of at a Local Authority Recycling Centre in order to realise the full environmental benefits.

Insulation is by means of an approved CFC/HCFC free polyurethane foam with an ozone depletion factor of zero.

WEEE Declaration

Disposal of waste equipment by users in private in the European Union.

Fig.47 Recycling

MW-3000179-03

This symbol on the product indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling please contact your local city office, your household waste disposal service or the company where this product was purchased.

14 Appendix

14.1 Water heater commissioning checklist

The commissioning checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate building regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect your statutory rights.

Customer name:	Telephone number:
Address	
Cylinder make and model:	
Cylinder serial number:	
Commissioned by (*print name*):	Registered operative ID number:
Company name:	Telephone number:
Company address:	
	Commissioning date:
To be completed by the customer on receipt of a building regulations compliance certificate*:	
Building regulations notification number (*if applicable*)	

All systems primary settings (indirect heating only)	
Is the primary circuit a sealed or open vented system?	
What is the maximum primary flow temperature?	*°C*

All systems	
What is the incoming static cold water pressure at the inlet to the system	*bar*
Has the strainer (if fitted) been cleaned of installation debris? *(yes/no)*	
Is the installation in a hard water area (above 200 ppm)? *(yes/no)*	
If yes, has a scale reducer been fitted? *(yes/no)*	
What type of scale reducer has been fitted?	
What is the hot water thermostat set temperature?	*°C*
What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)?	*l/min*
Is the cylinder solar (or other renewable) compatible? *(yes/no)*	

All systems	
What is the hot water temperature at the nearest outlet?	*℃*
All appropriate pipes have been insulated up to 1 metre or the point where they become concealed? *(yes)*	

Unvented systems only	
Where is the pressure reducing valve situated (if fitted)?	
What is the pressure reducing valve setting?	*bar*
Has a combined temperature and pressure relief valve and safety pressure relief valve been fitted and discharge tested? *(yes/no)*	
The tundish and discharge pipework have been connected and terminated to Part G of the building regulations? *(yes)*	
Are all energy sources fitted with a cut out device? *(yes/no)*	
Has the expansion vessel or internal air space been checked? *(yes/no)*	

Thermal stores only	
What store temperature is achievable?	*℃*
What is the maximum hot water temperature?	*℃*

All installations	
The hot water system complies with the appropriate building regulations? *(yes)*	
The system has been installed and commissioned in accordance with the manufacturer’s instructions? *(yes)*	
The system controls have been demonstrated to and understood by the customer? *(yes)*	
The manufacturer's literature, including commissioning checklist and service record has been explained and left with the customer? *(yes)*	

Commissioning engineer's signature
Customer's signature
(to confirm satisfactory demonstration and receipt of manufacturer's literature)

14.2 Mains pressure hot water storage system commissioning checklist

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect your statutory rights.

Customer name:	Telephone number:
Address	
Cylinder make and model:	
Cylinder serial number:	
Commissioned by (*print name*):	Registered operative ID number:
	Telephone number:
	Commissioning date:

All installations	
The hot water system complies with the appropriate building regulations? *(yes)*	
The system has been installed and commissioned in accordance with the manufacturer’s instructions? *(yes)*	
The system controls have been demonstrated to and understood by the customer? *(yes)*	
The manufacturer's literature, including commissioning checklist and service record has been explained and left with the customer? *(yes)*	

Commissioning engineer's signature
Customer's signature
(to confirm satisfactory demonstration and receipt of manufacturer's literature)

14.3 Benchmark commissioning checklist

14.3.1 Benchmark commissioning checklist

MAINS PRESSURE HOT WATER STORAGE SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the storage system as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission this equipment to the manufacturer's instructions may invalidate the warranty but does not affect statutory rights.

Customer Name ______ Telephone Number ______

Address ______

Cylinder Make and Model ______

Cylinder Serial Number ______

Commissioned by *(print name)* ______ Registered Operative ID Number ______

Company Name ______ Telephone Number ______

Company Address ______

______ Commissioning Date ______

To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:

Building Regulations Notification Number *(if applicable)* ______

ALL SYSTEMS PRIMARY SETTINGS (indirect heating only)

Is the primary circuit a sealed or open vented system?		Sealed ☐	Open ☐
What is the maximum primary flow temperature?			☐ °C

ALL SYSTEMS

What is the incoming static cold water pressure at the inlet to the system?			☐ *bar*
Has a strainer been cleaned of installation debris (if fitted)?		Yes ☐	No ☐
Is the installation in a hard water area (above 200ppm)?		Yes ☐	No ☐
If yes, has a water scale reducer been fitted?		Yes ☐	No ☐
What type of scale reducer has been fitted?			
What is the hot water thermostat set temperature?			☐ °C
What is the maximum hot water flow rate at set thermostat temperature (measured at high flow outlet)?			☐ *l/min*
Time and temperature controls have been fitted in compliance with Part L of the Building Regulations?			Yes ☐
Type of control system (if applicable)	Y Plan ☐	S Plan ☐	Other ☐
Is the cylinder solar (or other renewable) compatible?		Yes ☐	No ☐
What is the hot water temperature at the nearest outlet?			☐ °C
All appropriate pipes have been insulated up to 1 metre or the point where they become concealed			Yes ☐

UNVENTED SYSTEMS ONLY

Where is the pressure reducing valve situated (if fitted)?		
What is the pressure reducing valve setting?		☐ *bar*
Has a combined temperature and pressure relief valve and expansion valve been fitted and discharge tested?	Yes ☐	No ☐
The tundish and discharge pipework have been connected and terminated to Part G of the Building Regulations		Yes ☐
Are all energy sources fitted with a cut out device?	Yes ☐	No ☐
Has the expansion vessel or internal air space been checked?	Yes ☐	No ☐

THERMAL STORES ONLY

What store temperature is achievable?	☐ °C
What is the maximum hot water temperature?	☐ °C

ALL INSTALLATIONS

The hot water system complies with the appropriate Building Regulations	Yes ☐
The system has been installed and commissioned in accordance with the manufacturer's instructions	Yes ☐
The system controls have been demonstrated to and understood by the customer	Yes ☐
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer	Yes ☐

Commissioning Engineer's Signature ______

Customer's Signature ______

(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

benchmark COLLECTIVE MARK THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

www.centralheating.co.uk

14.4 Service record

SERVICE RECORD

It is recommended that your hot water system is serviced regularly and that the appropriate Service Record is completed.

Service Provider
Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

SERVICE 1 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 2 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 3 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 4 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 5 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 6 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 7 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 8 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 9 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

SERVICE 10 Date
Engineer Name
Company Name
Telephone Number
Comments
Signature

14.5 Notes

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FOR UNITED KINGDOM

Baxi Customer Support

0344 871 1545
Please note calls may be monitored or recorder

Opening hours
Monday - Friday, 8.00am-6.00pm
Saturdays and Bank Holidays, 8.30am-2.00pm
Please note calls may be recorded for training and monitoring purposes

baxi.co.uk

Register now to activate your warranty:
www.baxi.co.uk/registration

For the warranty to be maintained, please make sure...

1. Warranty is registered within 30 days
2. The appliance has an annual service

For full terms and conditions, visit www.baxi.co.uk/terms. Failure to adhere to terms and conditions will void your manufacturer's warranty.

Baxi
Brooks House,
Coventry Road,
Warwick, CV34 4LL

FOR IRELAND

BDR Thermea trading as Baxi Ireland

00353 (0)1 4590870
Please note calls may be monitored or recorder

Opening hours
Monday - Thursday : 8.00am-4.30pm, Freiday : 8.00am-4.00pm
In Warranty cover on Saturdays : 9.00am-12.00am Octobre - March.
We are closed on Bank Holidays, Christmas Day and New Year's Day.
Please note calls may be recorded for training and monitoring purposes

baxi.co.ie

Register now to activate your warranty:
www.baxi.ie/customer-support

For the warranty to be maintained, please make sure...

1. Warranty is registered within 30 days
2. The appliance has an annual service

For full terms and conditions, visit www.baxi.co.uk/terms. Failure to adhere to terms and conditions will void your manufacturer's warranty.

BDR Thermea trading as Baxi Ireland
Unit F 586, Calmount Park,
Calmount Road,
Ballymount, Dublin 12, Ireland

Please ensure the appliance is installed in accordance with these installation instructions and that you adhere to the Building Regulations.

CE