

Instructions for Installation and Use uniSTOR



Unvented hot water storage cylinder

- VIH GB 125 S
- VIH GB 155 S
- VIH GB 180 S
- VIH GB 210 S
- VIH GB 260 S
- VIH GB 310 S

■ ■ ■ ■ ■ GB

WRAS
Water Regulations Advisory Scheme

Assessed and found to comply with the requirements of the Building Regulations for unvented hot water storage systems.

WRAS Approval No.
0501061

WRAS
APPROVED PRODUCT

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We cannot accept responsibility for any damage which may occur as a result of non-observance of these instructions.

Subject to alteration.

1 Description

The uniSTOR range of unvented hot water storage cylinders are indirectly heated cylinders which are designed for use with UK standard boilers in hot water supply systems.

uniSTOR cylinders are available in six sizes; 125, 155, 180, 210, 260 and 310 litre. The cylinders are of stainless steel construction, insulated with EPS and enclosed in a decorative casing. They are supplied with all necessary cold and hot water controls and a 2 port valve for control of domestic hot water.

The uniSTOR cylinders operate using a mains water pressure supply and do not require a feed from a cold water storage tank. The uniSTOR cylinders have 22 mm DHW outlet and cold water mains inlet connections for optimum flow rate. To achieve optimum performance from the uniSTOR an adequate cold water mains supply pressure and flow rate must be available (see section 5.1.2: Mains Water pressure).

1.1 DHW Temperature Control

The uniSTOR is supplied fitted with a user adjustable domestic hot water (DHW) thermostat which controls a 2 port motorised valve and hence the temperature of the water in the uniSTOR.

The external electrical controls should be wired to the 2 port valve and cylinder thermostat in the normal way, as shown in the section Electrical Connections and Controls.

1.2 CH Control

Central heating is controlled by a separately fitted 2 port valve in conjunction with suitable external controls, such as a programmer, room thermostat or thermostatic radiator valves.

1.3 Immersion Heater

uniSTOR cylinders are also provided with an auxiliary back up 3 kW electric immersion heater, including operating thermostat and energy cut out.

The immersion heater is fitted behind the front panel. It is designed for use in unvented installations and contains a safety overheat thermostat in addition to the operating thermostat.

For the uniSTOR 260 and 310 an additional second immersion heater will be available as an accessory.

 **Note:**
Only the correct immersion heater containing a safety overheat thermostat may be used for replacement.

1.4 Applications


The Vaillant uniSTOR can be connected to any UK standard boiler.

1.5 Typical applications

- Single bathroom property:
uniSTOR 125
- Single bathroom property with an en-suite shower room:
uniSTOR 125 / 155
- Two bathroom property:
uniSTOR 155 / 180
- Two bathroom property with an en-suite shower room:
uniSTOR 180 / 210
- Larger properties:
uniSTOR 260 / 310

Commercial use:


Size depending upon hot water requirements

 **Note:**
1 Select the appropriate boiler to match the heating load (with the normal allowance for heating up from cold) plus an allowance for heating the hot water cylinder. Typically it is practice to allow an additional 2-3 kW for the hot water production.
2 Consideration should be given to the use of a larger size of cylinder than shown above where high water demands are likely.

2 Technical data

2 Technical data

	VIH GB 125 S	VIH GB 155 S	VIH GB 180 S	VIH GB 210 S	VIH GB 260 S	VIH GB 310 S	Unit
Size	125	155	180	210	260	310	litres
Maximum water supply pressure	10						bar
Operating pressure	3.5						bar
Pressure reducing valve	3.5						bar
Expansion relief valve	6.0						bar
Expansion vessel charge pressure	4.0						bar
T/P valve	95 / 7.0						°C/bar
Net weight	28	30	33	39	44	49	kg
Weight (full)	145	175	205	245	310	340	kg
Height	969	1179	1339	1499	1789	2109	mm
Cylinder connections:							
Cold mains inlet	22 mm compression						
DHW outlet	22 mm compression						
Balanced pressure cold water outlet	22 mm compression						
Secondary return	G 3/4						
Primary flow	22 mm compression						
Primary return	22 mm compression						
Electrical connections:							
3 kW Immersion heater (according ENBS 60335)	230/240 V, 50 Hz						
Length of Immersion heater	430						mm
Two port valve	230/240 V, 50 Hz						
Cylinder thermostat	230/240 V, 50 Hz						
Coil Specifications:							
Heat loss	1.4	1.7	1.8	1.9	2.1	2.4	kW/24h
Heat up time	21	23	24	27	35	47	min
Recovery	18	18.5	19	22	30	42	min

 **Note:**
Heat up time based on a primary flow rate of
9 l/min at 80 °C.
Temperature rise is from 15 °C to 65 °C.

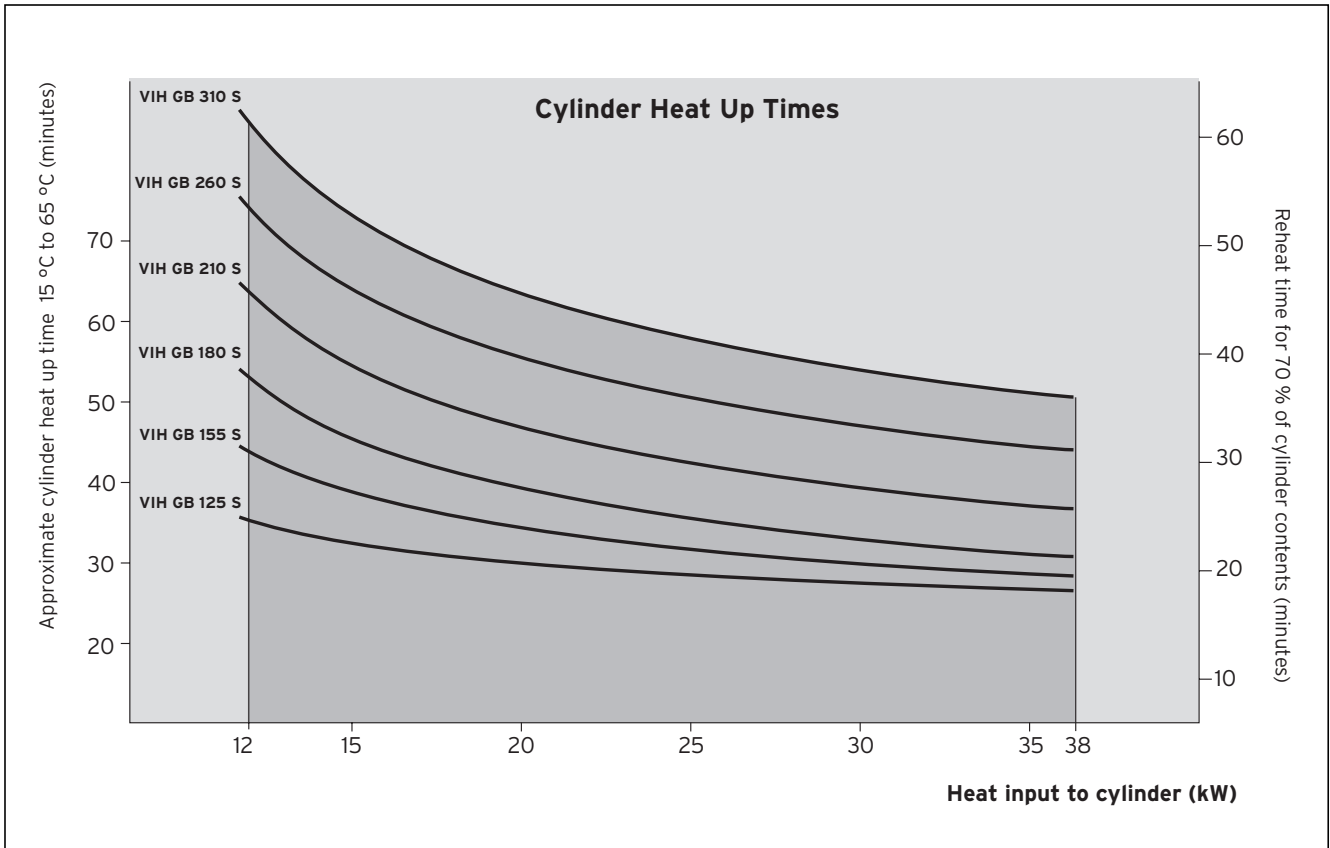


Fig. 1 Cylinder heat up times

3 Instructions for use

3 Instructions for use

3.1 Introduction

Your Vaillant uniSTOR unvented hot water cylinder together with a Vaillant boiler, provides you a modern, efficient, high performance heating and hot water system.

Because your uniSTOR hot water cylinder is supplied with water directly from the mains, you get the benefit of mains pressure hot water at your hot taps, without the need for storage tanks in the loft and without a hot water pump. The uniSTOR is made from high quality stainless steel within an easy clean casing. The cylinder is fully insulated using environmental friendly EPS insulation to help keep your hot water running costs at a minimum, and protect the environment!

Your uniSTOR cylinder is tailor made to accompany a Vaillant boiler as well as any other UK standard boiler. All Vaillant boilers are equipped with 'built-in' energy saving technology, such as burner modulation, anti cycling control and high efficiency heat exchangers.

Please read these instructions carefully to ensure that you get the very best out of your Vaillant heating and hot water system.

3.2 Liability

Warning!

We can accept no liability whatsoever for damage or injury resulting from failure to observe these instructions.

Specified use

Vaillant uniSTOR unvented cylinders are made to fulfil the latest technical specification and official safety regulations. These cylinders are designed for use with UK standard boilers for use in hot water supply systems.

The term 'specified use' also covers observance of the operating and installation instructions, along with adherence to the servicing schedules. At the rear of this manual you will find a Benchmark Cylinder Commissioning Checklist which should be completed by the installer and/or commissioning engineer and handed to the user. All CORGI registered installers carry a CORGI ID card and have a registration number. Both should be recorded in your Cylinder Commissioning Checklist. You can check your installer by calling CORGI direct on 01256 372300.



Note!

Your uniSTOR unvented hot water cylinder must be installed by a competent person in accordance with current Building Regulations. Do not remove or adjust any component part of this cylinder. In the unlikely event that your uniSTOR develops a fault, such as a flow of hot water from the discharge pipe, switch the boiler and immersion heater off and contact Vaillant Ltd or your installer.



Note!

If the uniSTOR is installed in a cupboard used for airing purposes please ensure that clothing or other articles are not placed on the cylinder or its associated controls.



Note!

Access should always be maintained to allow operation of the domestic hot water thermostat control.

3.3 How to use your uniSTOR hot water cylinder

Your boiler and uniSTOR unvented hot water cylinder will provide both central heating and mains pressure hot water.

Check that the boiler is operational as detailed in the instructions for use supplied with the boiler.

The domestic hot water thermostat on the uniSTOR can be set from 20 °C to 65 °C. The desired temperature will be set by the installer while commissioning the uniSTOR (normally a setting of 60 °C is adequate).



Note!

In hard water areas the DHW temperature selected should not exceed this setting to avoid possible scale build-up.

If a programmer has been fitted to control the central heating and hot water, check that this is set to the desired on and off periods.

The boiler will then operate automatically to heat the cylinder contents at the desired times to the temperature selected. When domestic hot water is used, the boiler will operate to re-heat the cylinder as required.

3.4 Immersion heater

The electric immersion heater behind the front panel is provided as a back up means of water heating and is not intended for use at the same time that the boiler is heating the cylinder.

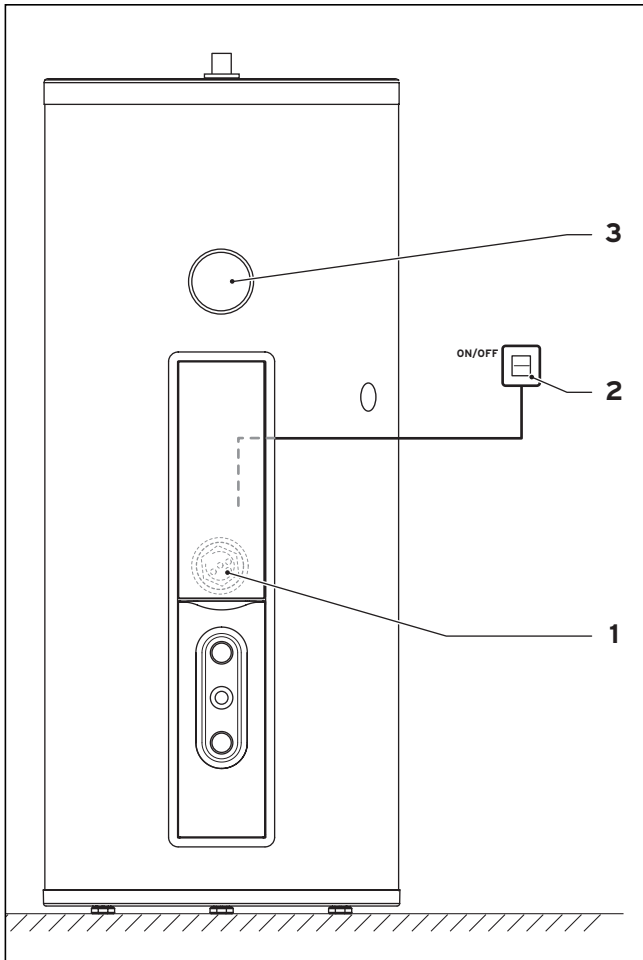


Fig. 1a

- 1 Immersion heater
- 2 Switch (Immersion heater ON/OFF)
- 3 Additional immersion heater for uniSTOR 260 and 310 (as accessory)

3.5 Important notes

Shutting down the uniSTOR cylinder

To shut down the heating and hot water system for short periods, simply turn off the boiler as shown in the instructions supplied with the boiler.

Frost protection

Please ensure that if you are absent during a period of frost the central heating system remains in operation and the rooms and uniSTOR cylinder are kept above freezing point.

Alternatively you can drain the central heating system, boiler and uniSTOR cylinder. Please contact your installer.

Care and Maintenance

The casing of the uniSTOR cylinder may be cleaned with a damp cloth and a little soap. Do not use any abrasive or solvent material which could damage the case or fittings.

It is important that your hot water cylinder is serviced annually by a competent person. Please contact your installer or Group Service (0870 - 6060777) for further details.

3.6 Guarantee

Vaillant offers a guarantee of 25 years for the stainless steel vessel against faulty materials or manufacture. The following information is important as without it your guarantee may be invalid.

1. The warranty will become invalid if the damage is due to frost or freezing, transient voltages, lightning strikes or any act of vandalism or misuse
2. The proof of purchase must be produced in the event of any warranty claim (bill of sale)
3. The uniSTOR must be installed by a competent person to the prevailing standards, installation book and building regulations at the time of installation
4. The Benchmark Cylinder Commissioning Checklist must be completed on installation and kept up to date
5. The uniSTOR must be serviced annually
6. The installation must be in an appropriate location and its use is restricted to potable water (chloride levels less than 200 mg/l)
7. Tampering or modification will invalidate the warranty
8. The guarantee card must be completed and returned to Vaillant Ltd. within 30 days of purchase
9. This guarantee does not cover the effects of scale.

For all other Vaillant parts (electrical, thermal controls, valves and design elements) Vaillant carry a 2 year guarantee.

4 Note To Installers

4 Note To Installers

This product has been assessed and found to comply with the requirements of the Building Regulations for unvented hot water storage systems and must not be altered or modified in any way.

The installation must be carried out by a competent person and be in accordance with the relevant requirements of the Local Authority, Building Regulations, Building Regulations (Scotland), Building Regulations (Northern Ireland), and the bye-laws of the local Water Undertaking. The installation is subject to Building Regulation approval, notify the Local Authority of intention to install. In the event of parts replacement, use only genuine spare parts supplied by Vaillant Ltd.

4.1 Secondary System

The uniSTOR is provided with all necessary safety and control devices for unvented DHW operation.

These are as follows:

- A** A prefitted temperature and pressure relief valve (95 °C, 7 bar).
- B** A Thermal cut set at 90 °C which when wired to the 2 port valve will isolate the heat source in the event of failure of the cylinder thermostat.
- C** A cylinder thermostat (20 °C - 65 °C)
- D** Expansion relief valve (6.0 bar) incorporating a non return valve.
- E** Pressure limiting valve (3.5 bar) incorporating a line strainer.

Check that the cylinder has been supplied with the following:

- Packed inside cylinder carton

- Water control pack (pressure reducing valve, expansion relief valve; connections for: balanced cold water, secondary return, expansion vessel)
- Motorised 2 port valve
- Tundish
- Cylinder drain valve
- 4 Compression fittings
- Installation and user instructions
- Mounting kit for expansion vessel
- Expansion vessel:
 - 12 litre for VIH GB 125/155
(max. storage volume by 3,5 bar = 155 l)
 - 18 litre for VIH GB 180/210
(max. storage volume by 3,5 bar = 255 l)
 - 25 litre for VIH GB 260/300
(max. storage volume by 3,5 bar = 315 l)

Accessory:

- Additional immersion heater 3 kW No. 0020006765
- VR 65 Control Center for new Vaillant boilers No. 307 215

Prior to installation, ensure that the cylinder is stored upright in dry conditions.

Please also refer to "General Requirements" in the installation instructions supplied with the boiler.

4.2 Secondary Return

A secondary return connection is provided in the water control pack.

Remove the 3/4 BSP blanking plug from the water control group. Connect onto the control group using an appropriate fitting. Using a WRAS approved circulation pump which incorporates a check valve to prevent backflow (see fig. 6). The secondary connection can be made.

5 Installation

5.1 Installation requirements

5.1.1 Siting

Locate the uniSTOR in the building in the most convenient position ensuring that:

- The discharge pipe from the tundish can be installed with a minimum fall of 1:200 and must be terminated in a safe and visible position (see section 5.1.4 Discharge pipework).
- The base chosen for the unit is level and capable of supporting the weight of the cylinder when full (see section 2: Technical Data).
- The installation site is frost-free. If necessary provide a frost protection thermostat.
- Access is available for user operation of the DHW temperature control under the front panel.
- Suitable clearances exist to allow installation, checking and repressurising of the expansion vessel.
- The installation site chosen does not result in excessive "dead leg" distances, particularly to the point of most frequent use.
- A suitable cold mains water supply pipe can be provided to the uniSTOR direct from the main water stop valve of the building.
- The uniSTOR is factory equipped with adjustable feet to allow uneven floor surfaces.

5.1.2 Mains Water Pressure

The DHW performance of an unvented cylinder installation will depend on the available mains water supply pressure and flow rate. To achieve optimum performance from the uniSTOR a suitable cold mains water supply must be available, i. e. the measured static pressure from the incoming mains water supply should be at least 2.0 bar. A corresponding flow rate at least 20-25 l/min should be available.



Note:
Mains water pressure will be reduced during periods of peak demand. Ensure that measurements are taken during these periods.

Example:

If the measured cold mains supply pressure is 2 bar static and the cold mains flow rate available is 30 l/min, the available flow rate of mixed water at 40 °C will be 25 l/min (from 15 l/min hot water from the uniSTOR at 60 °C together with 10 l/min cold water at 10°C).

The uniSTOR will operate satisfactorily with water supply pressures below 2 bar although flow rates will be reduced. If the supply pressure is below 1 bar the uniSTOR unvented storage cylinder should not be installed. Contact Vaillant Ltd. for details on alternative hot water supply systems.

In order to minimise frictional losses minimum 22 mm bore is recommended for new cold mains supply pipework into the dwelling although satisfactory performance can be achieved with 15 mm bore pipework.

5.1.3 Pipework - Primary Circuit

The primary circuit pipework between the Vaillant boiler and the uniSTOR should be installed using copper tube of minimum size 22 mm.

If the distance between the boiler and the cylinder is excessive, a larger pipe diameter may be necessary. It is not necessary to install a circulating pump in this pipework because all Vaillant wall mounted boilers contain a built-in circulating pump (except ecoMAX pro open-vented boilers).

If the uniSTOR cylinder is used with any other UK Standard boiler a suitable circulation pump must be fitted into the primary circuit.

5.1.4 Discharge Pipework

The outlet connections of both the temperature and pressure relief valve and expansion relief valve should be connected in 15 mm copper tube to the tundish supplied.

The tundish should be installed vertically, as close to the uniSTOR as possible and within 600 mm of the temperature and pressure relief outlet. It must be positioned away from any electrical components and installed in the same space as the uniSTOR cylinder, so that it is visible to the user.

The D1 discharge pipe from the T&P Valve/Expansion valve can be teed together upstream of the tundish (see fig 6). The discharge pipework must be installed using minimum 22 mm copper pipework from the 22 mm connection on the tundish to a safe and visible discharge point. There must be a vertical section of pipe at least 300 mm long, below the tundish before any bends or elbows in the pipework. Increase the diameter of the pipework if the total resistance of the discharge pipework exceeds the figures shown in the table below. The installation of the discharge pipework must be in accordance with G3 (see fig. 2).

Minimum size of discharge pipework from Tundish	Maximum total resistance allowed expressed as a length of straight pipe (i. e. no elbows or bends)	Resistance created by each elbow or bend
22 mm	up to 9 m	0.8 m
28 mm	up to 18 mm	1.0 m
35 mm	up to 27 mm	1.4 m

5 Installation

Example

22 mm discharge pipe having 4 elbows and a length of 7 m from the tundish to the discharge point:

Resistance for 4 elbows	
at 0.8 m each	= 3.2 m
Resistance of discharge pipe	= 7.0 m
Total Resistance	= 10.2 m

The total resistance of the discharge pipework is greater than the maximum allowed for 22 mm pipework (9 m). Therefore calculate the next largest size.

28 mm discharge pipe with 4 elbows and 7 m length from tundish to discharge point.

Resistance for 4 elbows	
at 1.0 m each	= 4.0 m
Resistance of discharge pipe	= 7.0 m
Total Resistance	= 11.0 m

The total resistance of the discharge pipework is less than the maximum allowed for 28 mm pipework (18 m) therefore the discharge pipework size is acceptable.

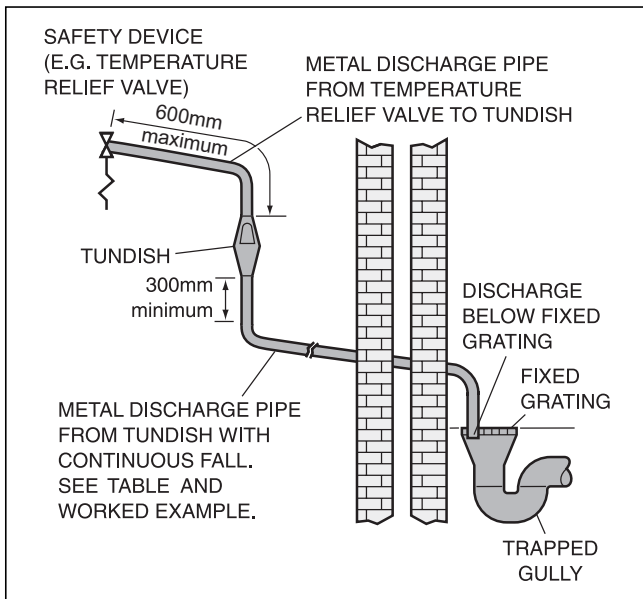


Fig. 2 Typical discharge pipe arrangement

Under fault conditions, the discharge warning pipe can emit water at near boiling temperature. Ensure the discharge pipe terminates at a safe position where there is no risk of contact with hot water by persons in or about the building (safe and visible).

A suitable position for the discharge point is ideally below a fixed grating and above the water seal in a trapped gully. 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 where children may play or otherwise come into contact with discharges a wire cage or similar guard is positioned to prevent contact, whilst maintaining visibility.

Do not fit any valves or taps to the discharge pipework. Ensure the pipework has at least 1:200 fall continuously from the tundish to the discharge point.

The discharge pipe from the pressure relief valve of the Vaillant boiler may be teed-into the discharge pipework from the uniSTOR downstream of the tundish in the horizontal pipework.

5.1.4.1 High Level Termination

Providing that the point of termination is such that persons in or around the building will not be endangered should discharge take place, the method of termination shown in fig. 3 is satisfactory. Examples of points to consider when deciding whether a location for the high level discharge is suitable are:

- The possibility, taking into account wind effect, that someone may be in the path of the water being discharged and if so, whether the temperature of the discharge water will have been sufficiently reduced to not be dangerous. Thermal conductivity of the structure's surface, climatic conditions and location and orientation of the discharge pipe may or may not have an effect on reducing the temperature of the discharge water.
- The location of windows and similar openings.
- The likelihood of a pram being left beneath the point of discharge.
- The ability of the structures surface to withstand near boiling water.
- The possibility of ice formation if water is discharged onto pedestrian walkways.

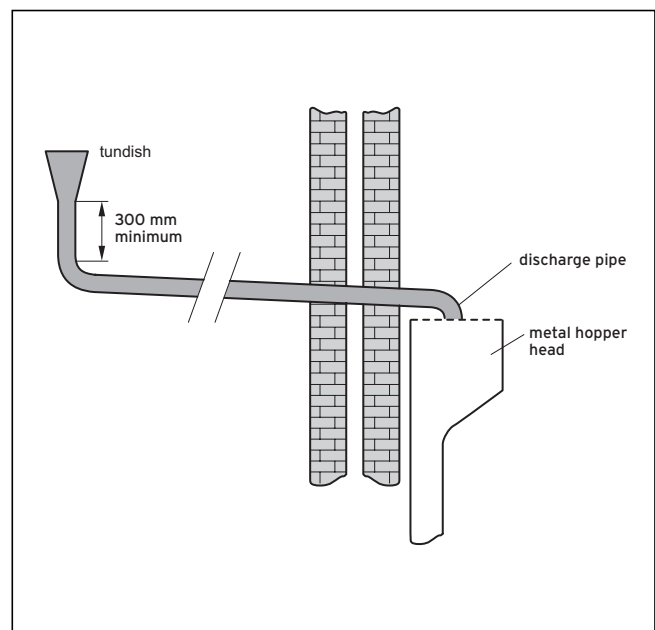


Fig. 3 High level termination

5.2 Dimensions

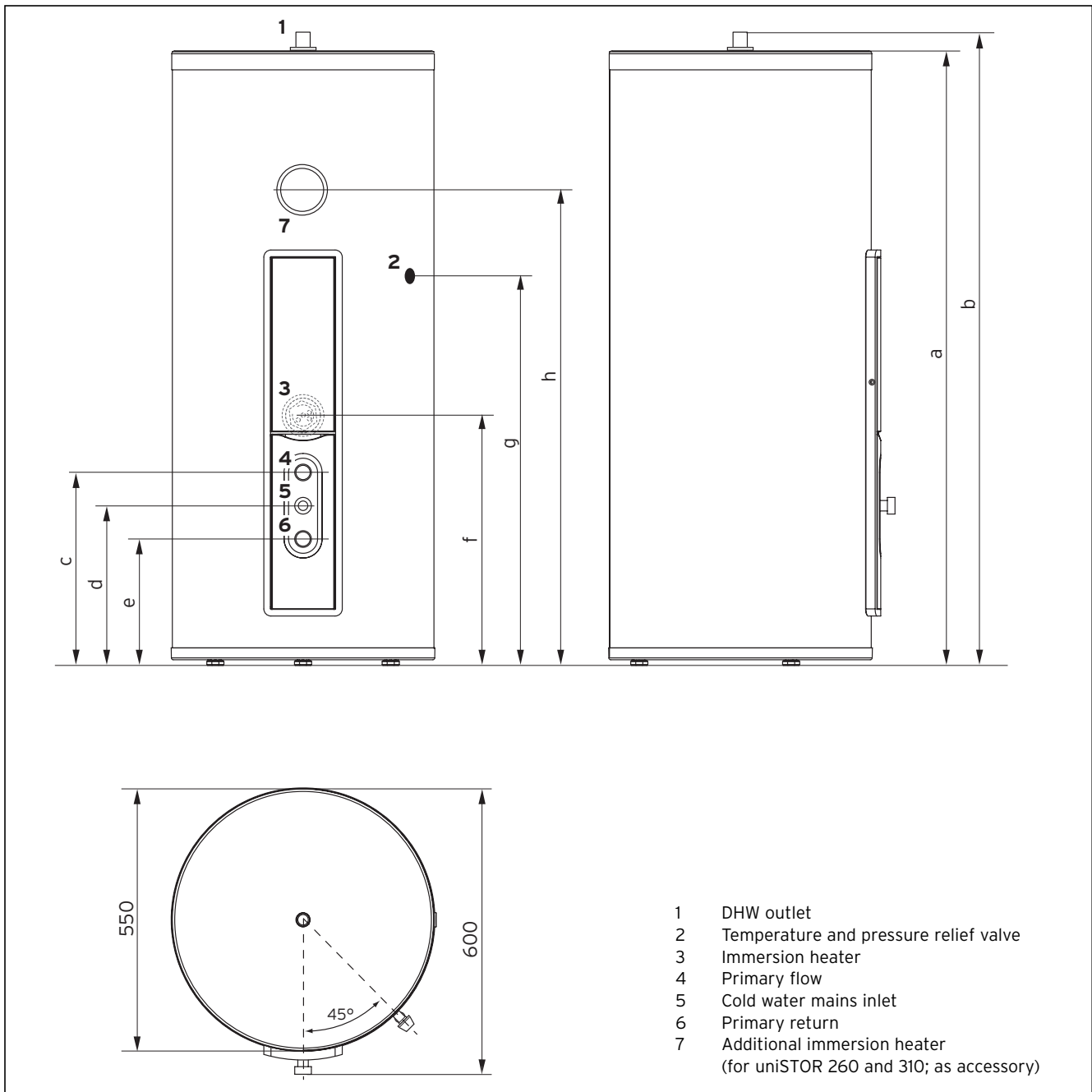


Fig. 4 (all dimensions in mm)

	a	b	c	d	e	f	g	h
VIH GB 125 S	938	969	421	351	281	556	728	-
VIH GB 155 S	1148	1179	454	384	314	589	903	-
VIH GB 180 S	1308	1339	454	384	314	589	1038	-
VIH GB 210 S	1468	1499	454	384	314	589	1118	-
VIH GB 260 S	1758	1789	454	384	314	589	1408	1376
VIH GB 310 S	2078	2109	454	384	314	589	1648	1376

5 Installation

5.3 Functional diagrams

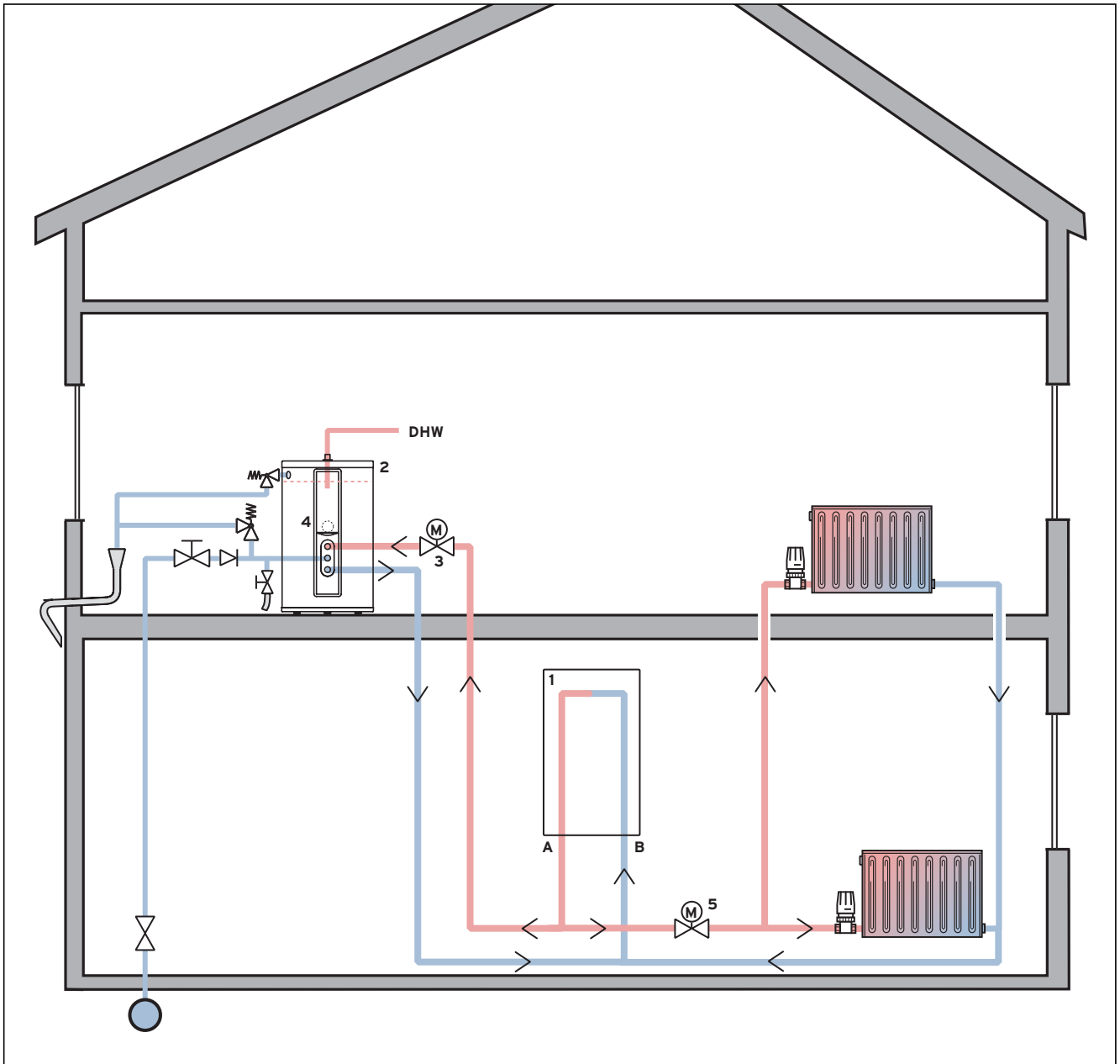


Fig. 5

- 1 Boiler
- 2 uniSTOR cylinder
- 3 2 port motorised valve (provided with the boiler)
- 4 Immersion heater
- 5 2 port motorised valve

- A Boiler flow
- B Boiler return

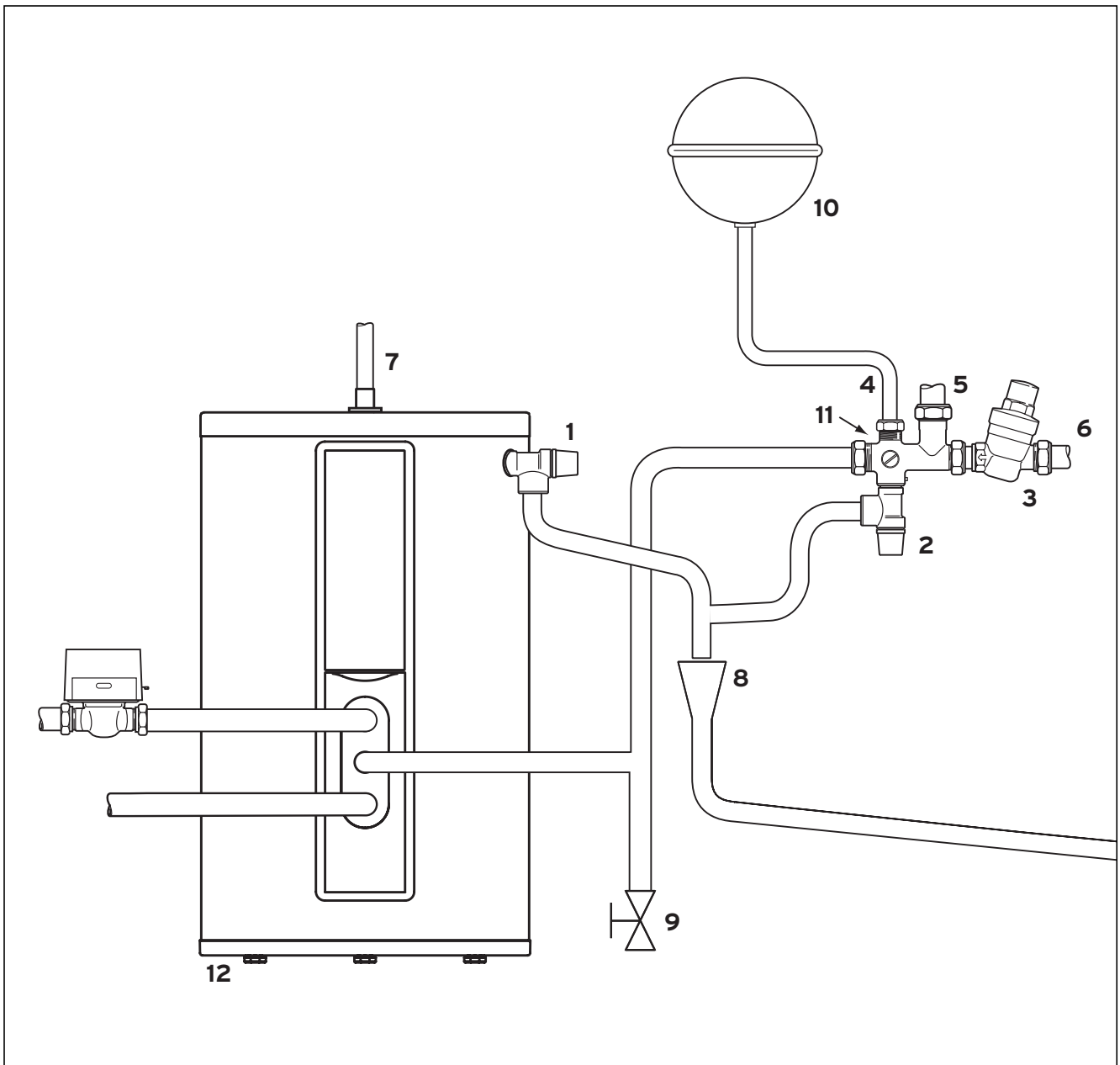


Fig. 6

- 1 Temperature and pressure relief valve
- 2 Expansion relief valve
- 3 Pressure limiting valve combined with strainer
- 4 Connection to expansion vessel
- 5 Balanced pressure cold water outlet
- 6 Cold water mains inlet
- 7 DHW outlet
- 8 Tundish
- 9 Cylinder drain point
- 10 Expansion vessel
- 11 Secondary return connection
- 12 Adjustable feet

5 Installation

5.4 Installation procedure

- Unpack the uniSTOR cylinder and check the contents (detailed in section 4: notes to installers).
- Position the uniSTOR in accordance with section 5.1.1: Siting

5.4.1 Primary pipework

To prevent the uniSTOR from overheating the 2 port motorised valve supplied with the cylinder must be fitted to the primary flow to the indirect coil (see figure 5).

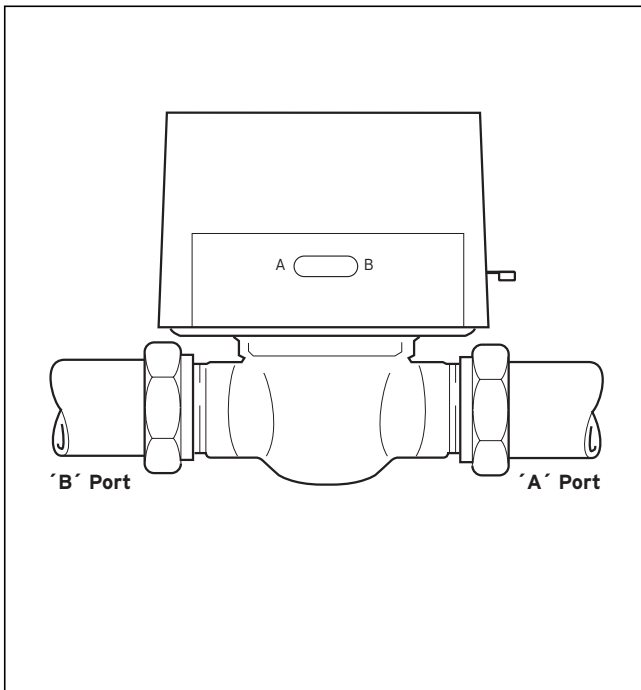


Fig. 7

5.4.2 Secondary system Pipework

- Connect the two cold water control valves together as shown in fig. 8, ensuring that the orientation of the valves, when installed in the cold mains supply, allows the 15 mm outlet of the expansion relief valve to be connected to the tundish.
- Install the discharge pipe from the expansion relief valve so that it has a continuous fall to outside in a safe and visible position where it will be unaffected by frost. Never cap or block the outlet of the expansion relief valve.
- Activate the expansion relief valve regularly to prevent from calcification.
- Provide a cold water mains supply to the uniSTOR. To ensure optimum performance from the uniSTOR, and particularly in installations where the balanced pressure cold water outlet (5, fig. 8) is to be used, the pipework provided from the building mains stop valve to the uniSTOR cylinder should be minimum 22 mm copper tube.

- Install the drain valve in the cold mains supply between the uniSTOR cylinder and the cold water control valves at the lowest point.
- Install the assembled cold water control valves (fig. 8) in the cold mains supply at a convenient position adjacent to the uniSTOR cylinder, ensuring adequate space exists for service access and allow for connection of the discharge pipe from expansion relief valve.

If the discharge pipes are to be tied together the expansion valve must be within 600 mm of the temperature and pressure relief valve (fig 6).

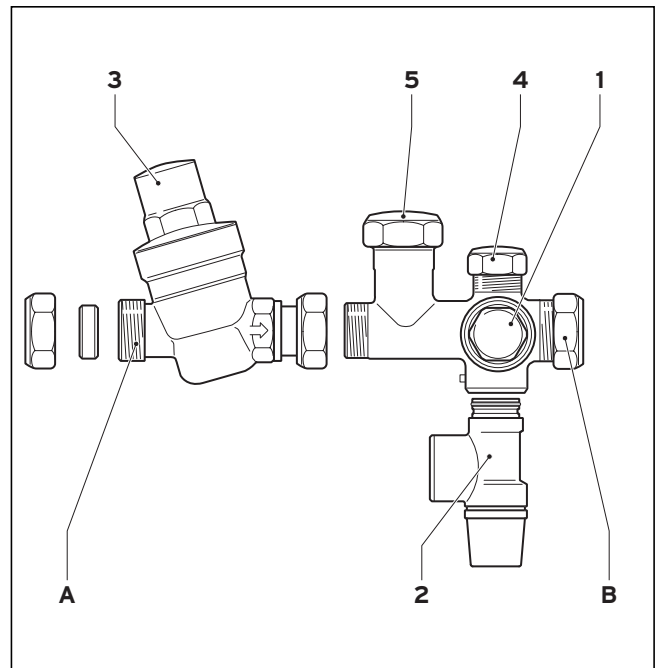


Fig. 8

- A Mains Cold water inlet
- B Connection to cylinder
- 1 Secondary return connection
- 2 Expansion relief valve
- 3 Pressure limiting valve combined with strainer
- 4 Connection to expansion vessel
- 5 Balanced pressure cold water outlet



Important

No isolation valve shall be installed between the assembled cold water control valves and the cylinder.

The Vaillant uniSTOR is provided with an external expansion vessel.

- Connect the expansion vessel to the installed water controls by either:
 - i. Screwing the vessel directly into the control assembly at the purpose provided connection (1, fig. 8) or;
 - ii. Connecting the vessel to the control assembly via copper pipe or a suitable approved flexible connection hose (4, fig. 8), ensuring that the vessel is adequately supported.
Use the supplied Expansion Vessel Mounting Bracket for wall installation.

- Connect the balanced pressure cold water supply (if required) to the cold water control pack (see fig. 8).

Note:
 In areas where the mains water pressure is high (4 bar or above) the cold water supply to a bath or shower mixer valve can be taken from the balanced pressure cold water outlet (5, fig. 8) of the cold water controls. This will ensure that both hot and cold supplies to the mixer valve are at approximately the same pressure. The cold water supply for all other terminal fittings should be feed into the cold water supply pipework to the uniSTOR upstream of the cold water controls.

- Connect the DHW outlet pipework to the 22 mm domestic hot water outlet on the uniSTOR. Continue with 22 mm size pipe to the first tee fitting after which 15 mm pipework should be adequate. If the pipe runs are of excessive length or there are several terminal fittings supplied, extend the length of pipework in 22 mm.
- Connect the secondary return if required as shown in 4.2: Secondary Return.

5.4.3 Safety valve discharge pipework

- Connect the temperature/pressure relief and expansion relief valves to the tundish using 15 mm pipe and install the discharge pipework from the tundish in accordance with section 5.1.4: Discharge Pipework.

5.4.4 Drain Valve

The drain valve supplied with the uniSTOR has to be fitted in the cold water mains supply between the uniSTOR cylinder and the cold water control valves as low as possible (see fig. 6)

We recommend to fit a hose pipe in the outlet of the drain valve approximately 1 meter below the bottom of the cylinder (this can be achieved by connecting a suction hose to the outlet of the drain valve).

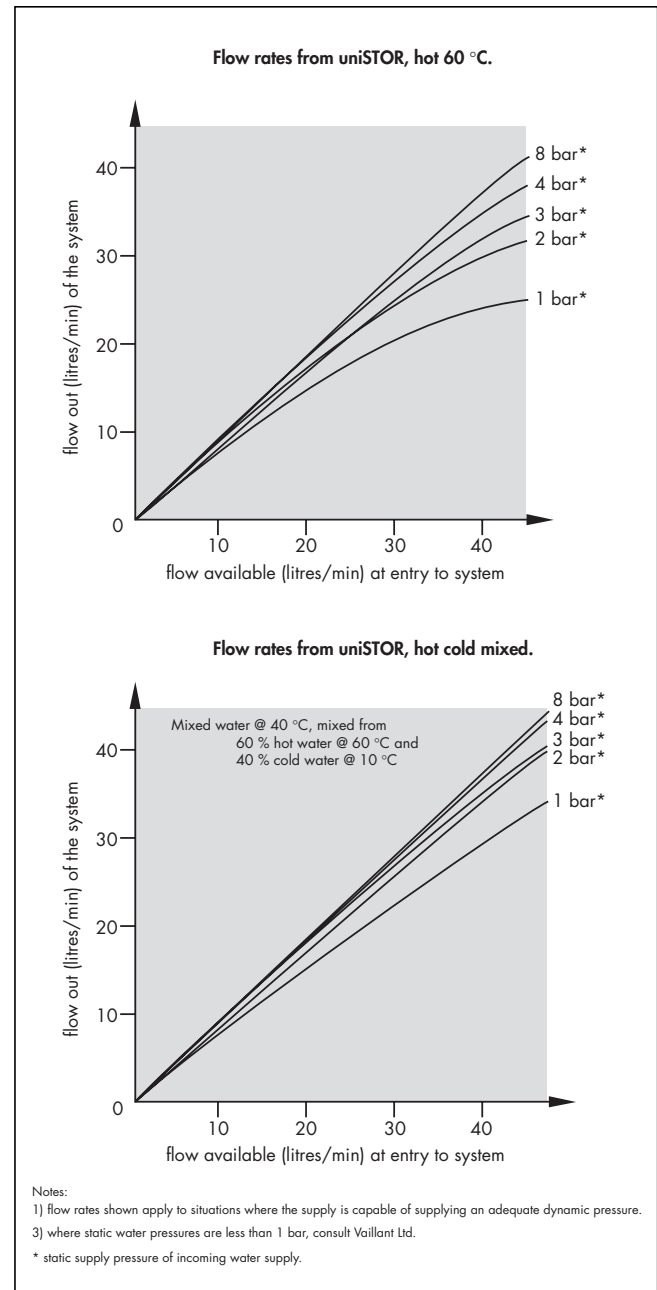


Fig. 8a

5 Installation

5.4.5 Electrical Connections and Controls

All electrical connections conform to BS 7671 and 6759-1. The position of the discharge pipes (tundish), drain valves and motorised valves etc. shall be positioned away from any electrical components.



Warning:

The cylinder must be earthed.

5.4.5.1 Immersion Heater

The uniSTOR VIH 125 - 310 cylinders are equipped with a factory fitted immersion heater. All internal wiring is factory mounted.



Warning:

The immersion heater must be earthed.

Install a separate electrical supply to the immersion heater in accordance with the current IEE wiring regulations (BS 7671). The immersion heater must be wired in 3 x 2.5 mm² heat-resisting cable from a double pole isolating switch. The circuit must be protected by a 13 amp fuse. The connection details for the immersion heater are shown in fig. 9.

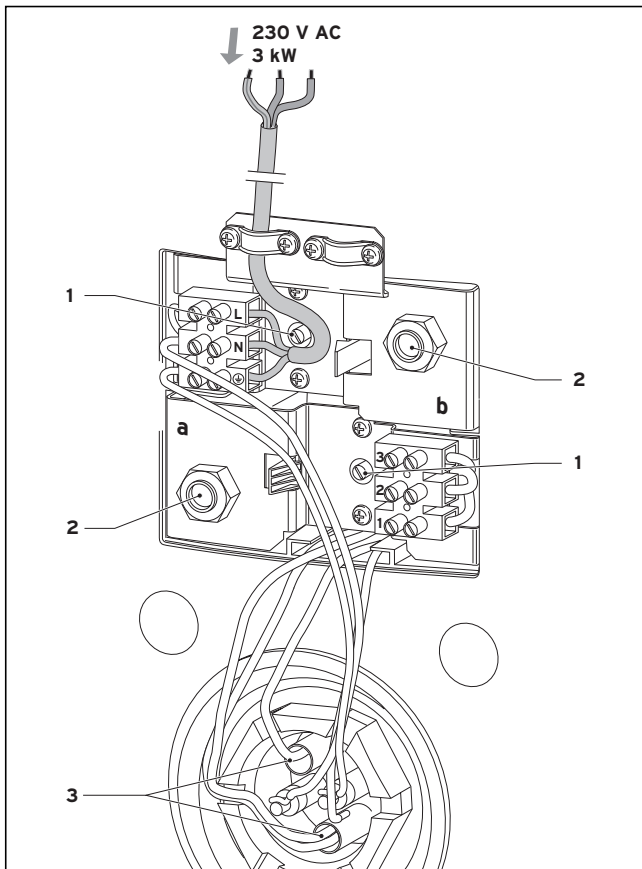


Fig. 9 Immersion heater electrical connections

- | | | | |
|---|-------------------|---|-------------------------------------|
| a | Cylinder Controls | 1 | Thermostat (adjustable) |
| b | Immersion heater | 2 | Thermal cut out (with Reset button) |
| | | 3 | Sensor |



Important:

The immersion heater incorporates an energy cut-off device and must not under any circumstances be replaced by a standard immersion heater.

Only a correct genuine Vaillant spare part is permitted. All uniSTOR cylinders with a volume of 260 l or 310 l are provided with an additional boss to fit a second immersion heater. The immersion heater can be ordered as accessory (No. 0020006765)

5.4.5.2 Electrical Connections to Cylinder Controls

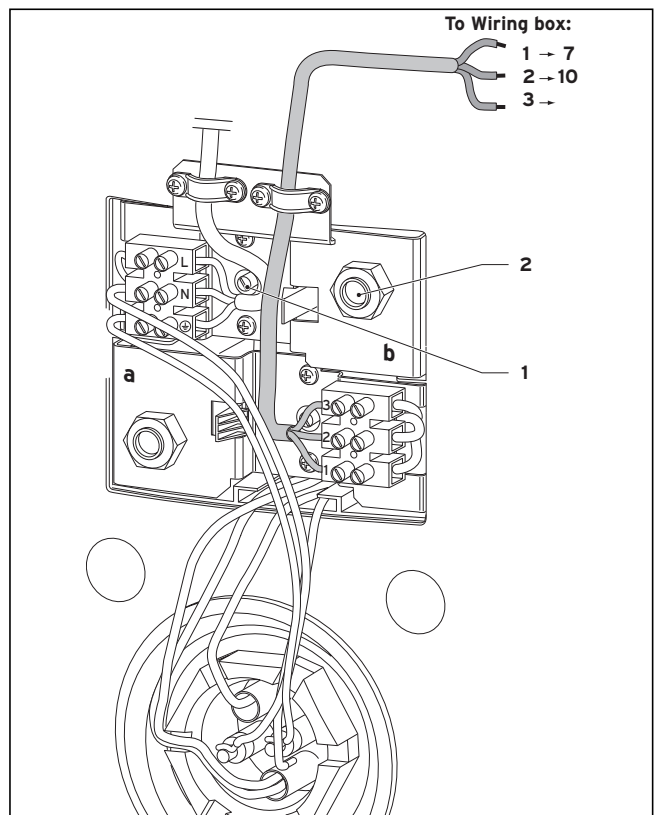


Fig. 10 Electrical Connections to Cylinder Controls



Note:

In case you do not wire the immersion heater then connect the earth wire to the terminal marked E on the immersion heater connector block.




Warning:

The uniSTOR cylinder must be earthed.

The Vaillant uniSTOR and accompanying Vaillant boiler may be controlled using various programmers and room thermostats, details of which are given in section: Control Options.

The uniSTOR cylinder has a prefitted cylinder thermal cut out and thermostat.


All internal wiring is factory mounted. The thermostat which controls the DHW temperature (1, fig. 10) is adjustable between 20 and 65 °C. The built in safety thermal cut out operates at 90 °C. Should the thermal cut out be brought into operation, the motorized 2 port valve will be operated and shut the primary flow to the cylinder. Press the reset button (2, fig. 10) to reset thermal cut out and motorised valve.

Important:
 **Before resetting the thermal cutout or changing the temperature setting of the thermostat, switch off the electrical supply.**


Connections to wiring box

- Provide a wiring box adjacent to the cylinder to make the electrical connections.
- Connect the boiler terminals to the corresponding terminals of the wiring box.
- Connect the uniSTOR cylinder controls to the wiring box as shown in figure 10.

- Connect the 2 port valve flying lead to the terminals of the wiring box.
- Connect the terminals of the programmer and room thermostat to the terminals of the wiring box.
- Connect a 3 amp fused mains supply to the terminals of the wiring box.

Note:
 **All wiring must be carried out in accordance with BS 7671: Requirements for electrical installations (IEE Wiring Regulations, current edition).**

- Check that the sensors from the immersion heater and the cylinder are positioned correctly in the tubes.

Note:
 **A special accessory is offered for the electrical connections between the uniSTOR and an ecoEURO appliance (No. 307 215).**

5.4.5.3 Connection details for control systems utilising 2 x 2 port motorised valves via external wiring box

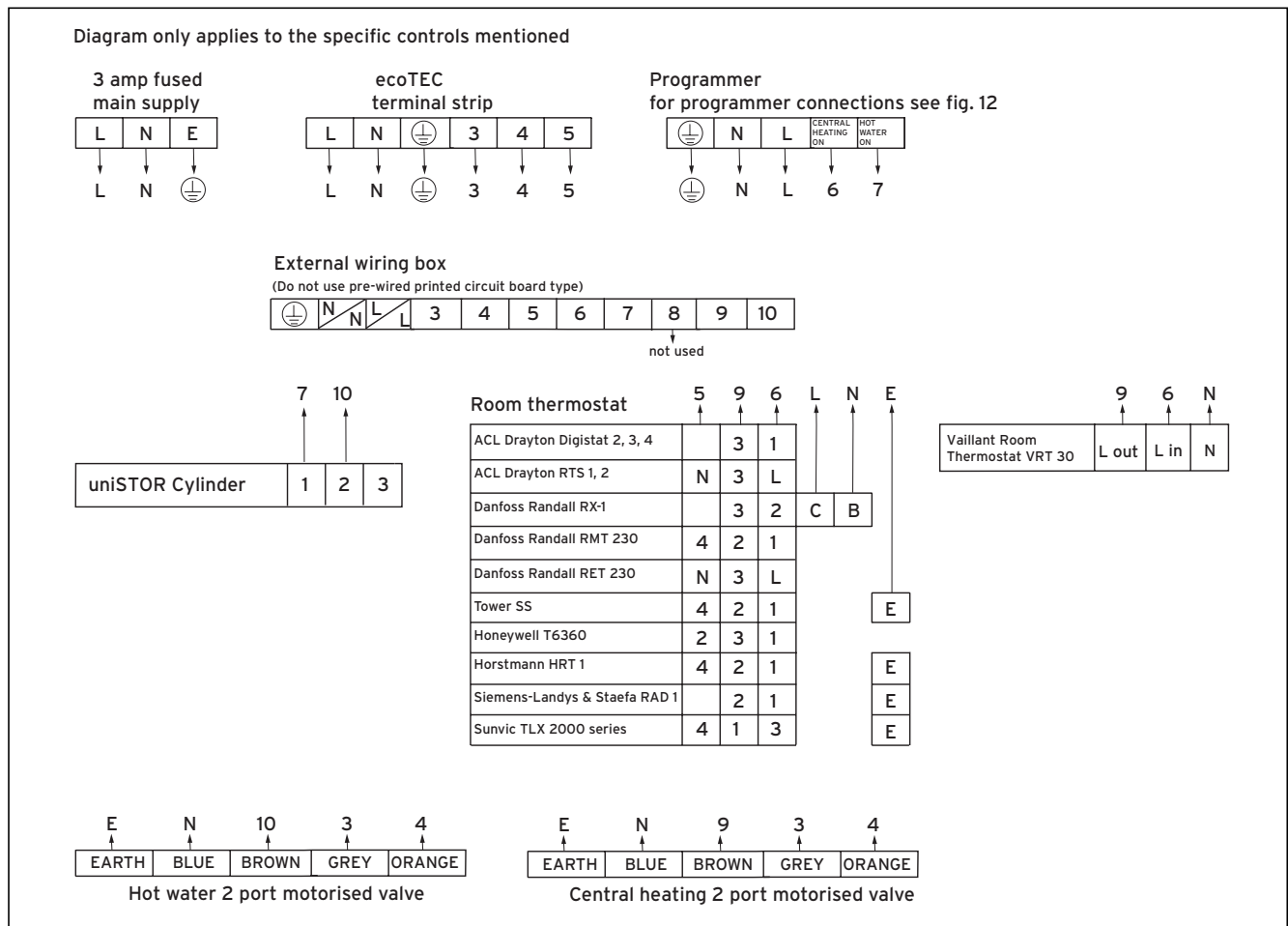


Fig. 11 Connection details for control systems utilising 2 port motorised valve

5 Installation

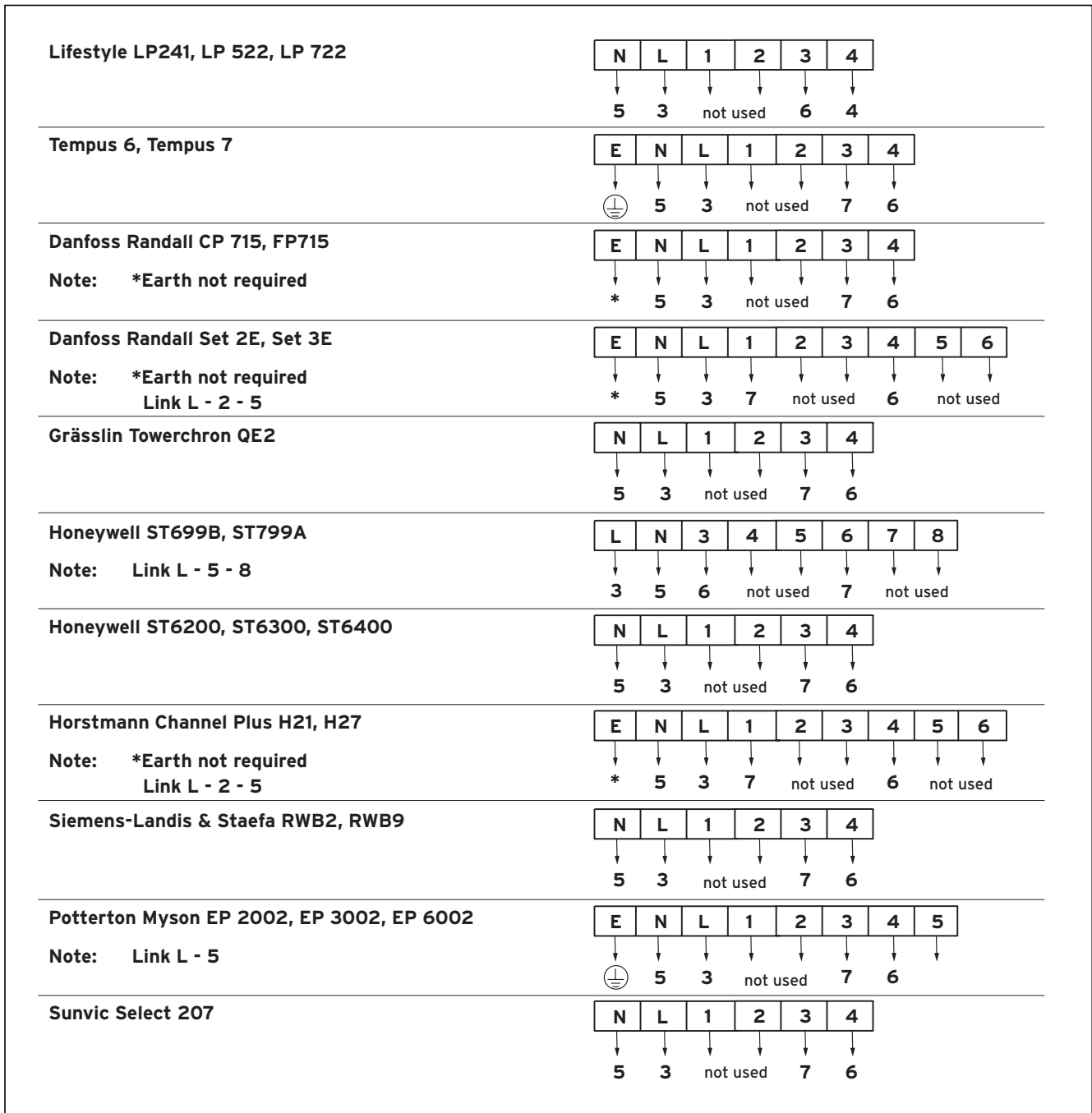


Fig. 12 Connection details between programmer and wiring box.

5.4.5.4 Connection details for connection to any UK standard boiler

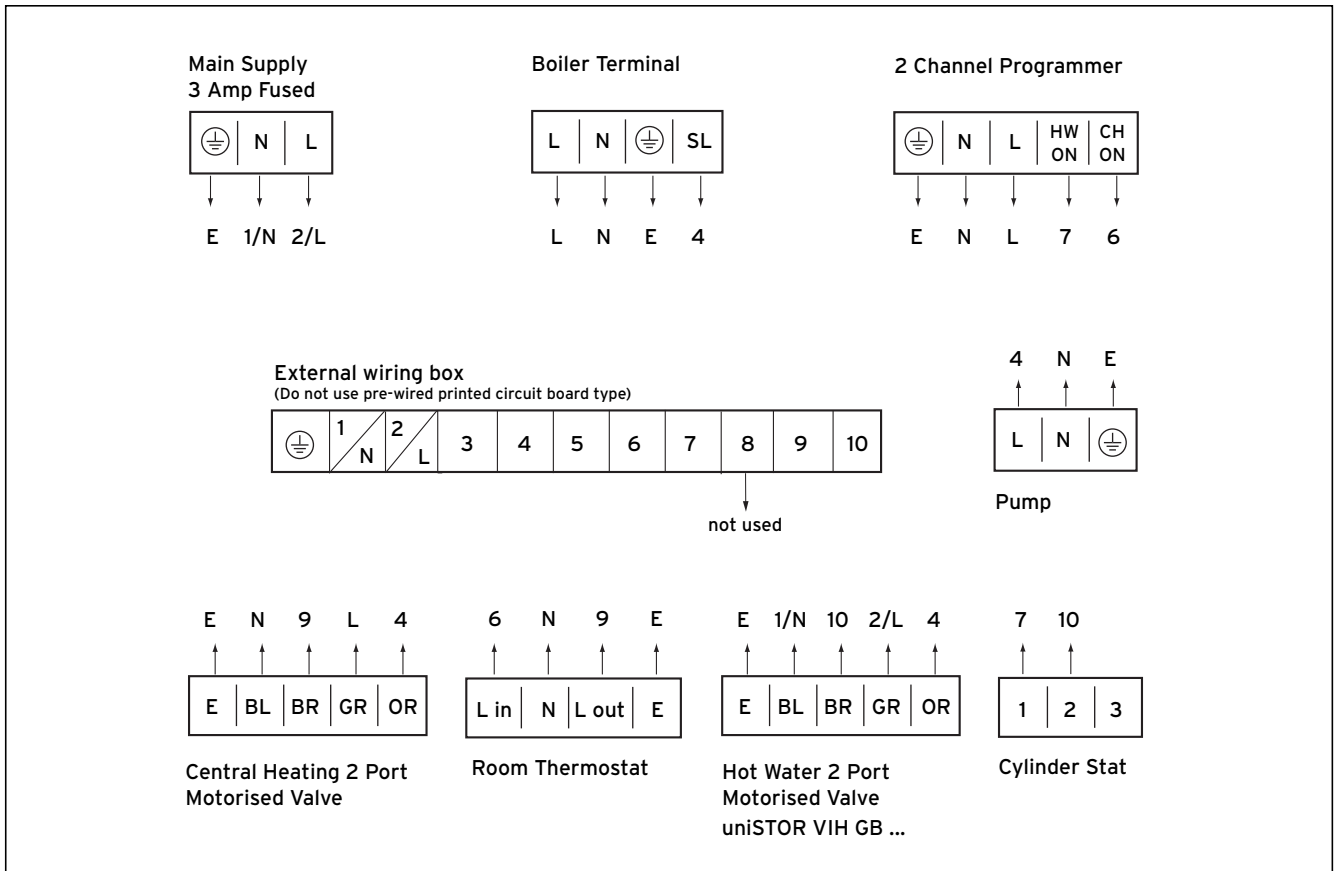


Fig. 13 2 x 2 port valve system

Boiler Terminal Designation:

- L, 1: Mains Live
- RS, 2: Room Thermostat
- FS, 3: Frost Stat
- N, 4: Mains Neutral
- E, 5: Mains Earth
- PE, 6: Pump Earth
- PN, 7: Pump Neutral
- PL, 8: Pump Live
- CE: Chassis Earth

- BR Brown
- BL Blue
- GR Grey
- OR Orange
- W White

- DHW Domestic Hot Water
- HTG Heating

Important:

1-10 must go to the corresponding number in the wiring box.

6 Commissioning

6.1 Filling Secondary DHW Circuit

Note:
Do not manually open the temperature and pressure relief valve or expansion relief valve for venting purposes (any foreign matter in the pipework may cause damage to the valve seats).

- Ensure that the cylinder drain valve (9, fig. 6) is closed.
- Open all the hot and cold water taps or other terminal fittings.
- Open the mains water supply to the uniSTOR and continue filling until water runs freely from the terminal fittings, ensuring all air pockets are purged.
- Close the terminal fittings and check the system for leaks. Specially check the connection of the immersion heater for leaks.

The system should now be thoroughly flushed.

- Open hot water taps at opposite ends of the system and allow water to discharge for at least 5 minutes.
- Close the hot water taps.

6.2 Filling the Primary Circuit

Note:
Do not use boiler pressure relief valve for venting purposes.

- The complete primary CH system must be flushed out with both cold and hot water. Fill and vent the central heating system as detailed in the boiler installation instructions.
To assist with this operation set the manual override lever on the 2 port diverter valve (fig. 7) to the MANUAL position, and lock in this position by pushing the lever into the valve head.
- Completely drain the CH system, then refill and vent.
- Reset the lever on the 2 port valve to the "AUTO" position by releasing the manual operating lever from the valve head (pull outwards).

For commissioning purposes and to reduce the time for the cylinder contents to reach temperature, set the cylinder hot water thermostat knob (1, fig. 14) to setting middle position (approx. 40 °C).

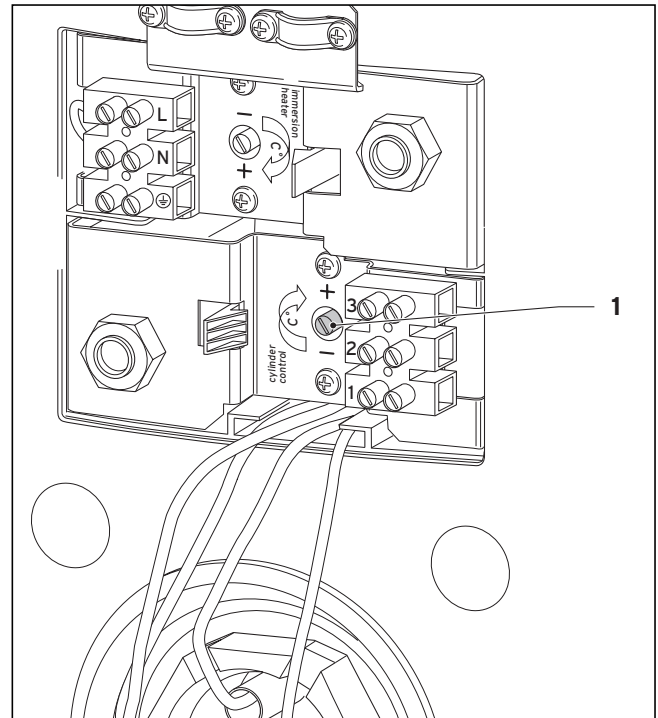


Fig. 14 Electrical Connections to Cylinder Controls

- Operate the boiler as in section 6.3 until both the cylinder has reached temperature and all radiators in the system are hot. Then once again drain the complete CH system to remove residues from the pipework and refill and vent again as above.
- Reset the manual operating lever on the 2 port valve to the "AUTO" position once the system has been refilled and vented.

6.3 Operating the Boiler


- Ensure the boiler mains switch is turned on.
- Ensure that the programmer and thermostats are calling for heat.
- Check that the boiler fires and heats the cylinder contents and the radiators according to the DHW and room thermostat settings.
- Carry out the commissioning and testing procedures detailed in the installation instructions supplied with the boiler.
- Upon completion of the commissioning procedures, set the DHW thermostat knob on the uniSTOR to approx. 60 °C, and set the back up immersion heater (fig. 9) thermostat to 60 °C.

6.3.1 Benchmark Cylinder Commissioning Checklist

Complete the Benchmark Cylinder Commissioning Checklist included in the instructions.

6.4 User's Instructions

Hand these instructions for use to the user for retention and instruct in the safe operation of the boiler and cylinder. Advise the user of the operation of the cylinder thermostat and the immersion heater thermostat, and that normally a setting of max, which gives a stored water temperature of approximately 60 °C is adequate.


 **Note:**
In hard water areas the DHW temperature setting should not exceed this setting to avoid possible scale build-up.

Advise the user of the precautions necessary to prevent damage to the system and to the building if the system does not remain operative during frost conditions.

Advise the user that the immersion heater is provided as a back up means of water heating and is not intended for use at the same time that the boiler is heating the cylinder.

Finally, advise the user that for continued efficient and safe operation, the boiler and uniSTOR cylinder should be serviced at least once a year by a qualified servicing company. It is important and strongly recommended that arrangements are made for a maintenance agreement with a qualified servicing company to ensure regular servicing of the boiler and cylinder.

Please contact Group Service (0870 - 6060777) for further details.

 **Note:**
Leave installation, servicing and user instructions with the user.

7 Maintenance


The following maintenance work has to be carried out annually by the competent installer or Vaillant Service Solutions.

- Inspection of pressure/temperature relief valve and expansion relief valve.
 Manually operate each valve by twisting the operating cap, and check if water flows unobstructed via the tundish to the discharge point. Ensure that both valves re-seat satisfactorily.
- Check pressure of expansion vessel.
 Turn off mains water supply and open nearest hot water tap to depressurise the secondary water system. Check the expansion vessel charge with a pressure gauge at the test point. If the pressure is below 3.0 bar, top up with suitable air pressure pump.
- Complete service section of Cylinder Commissioning Checklist.

 **Note:**
In the event that parts require replacement, use only genuine spare parts supplied by Vaillant Ltd.

8 Fault finding

8 Fault finding

 **Note:**
Only genuine spare parts supplied by Vaillant Limited must be used.

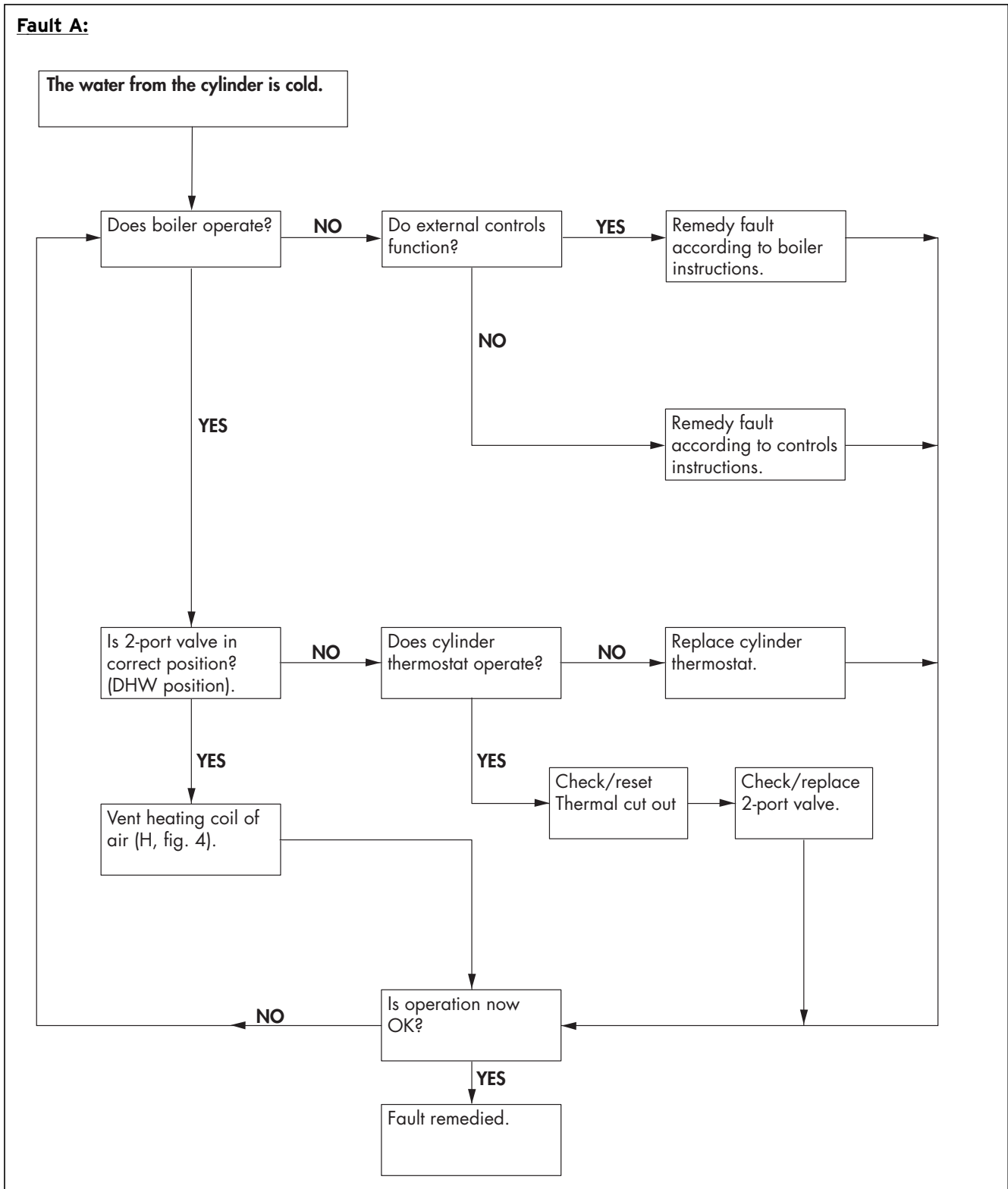


Fig. 15

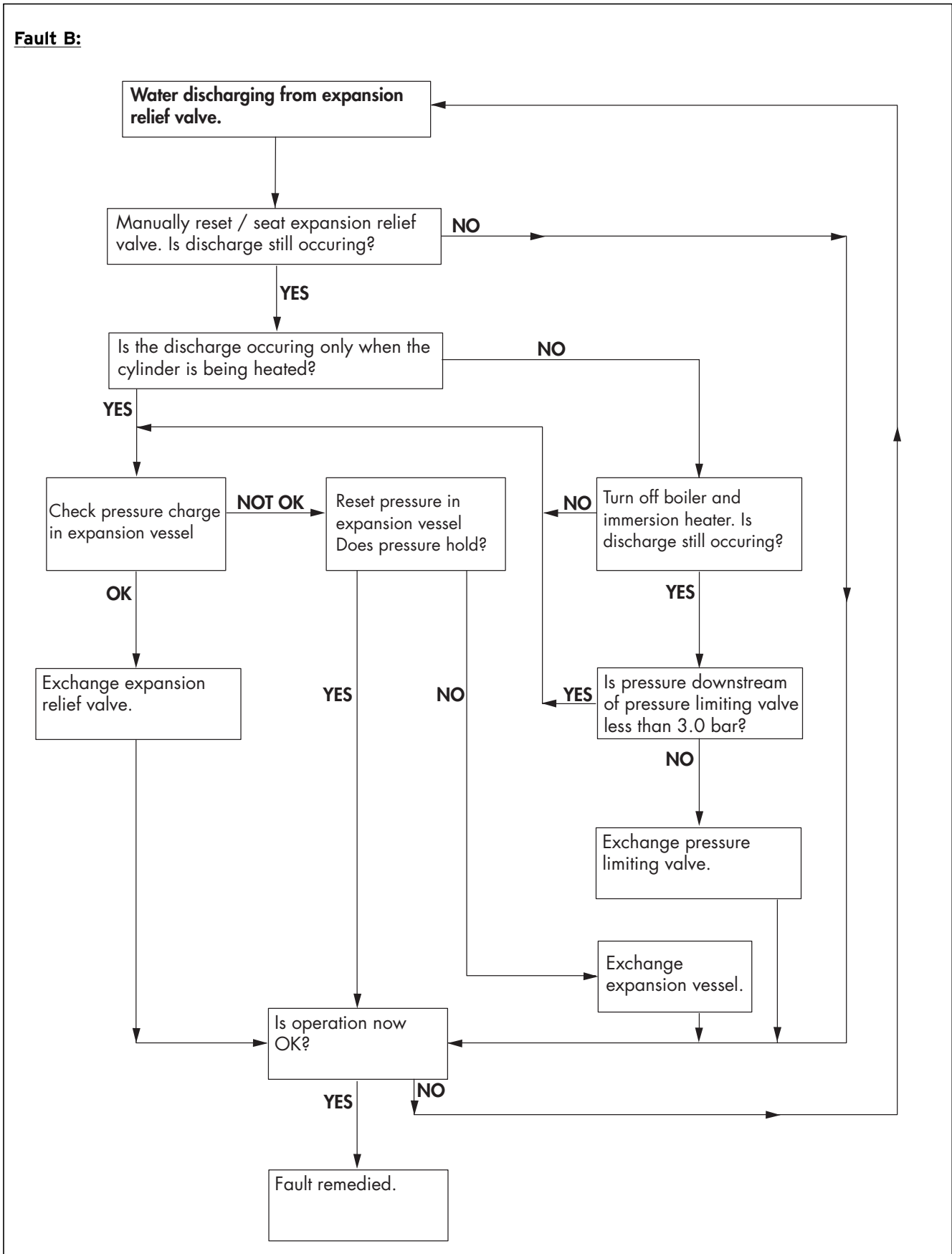


Fig. 16

8 Fault finding

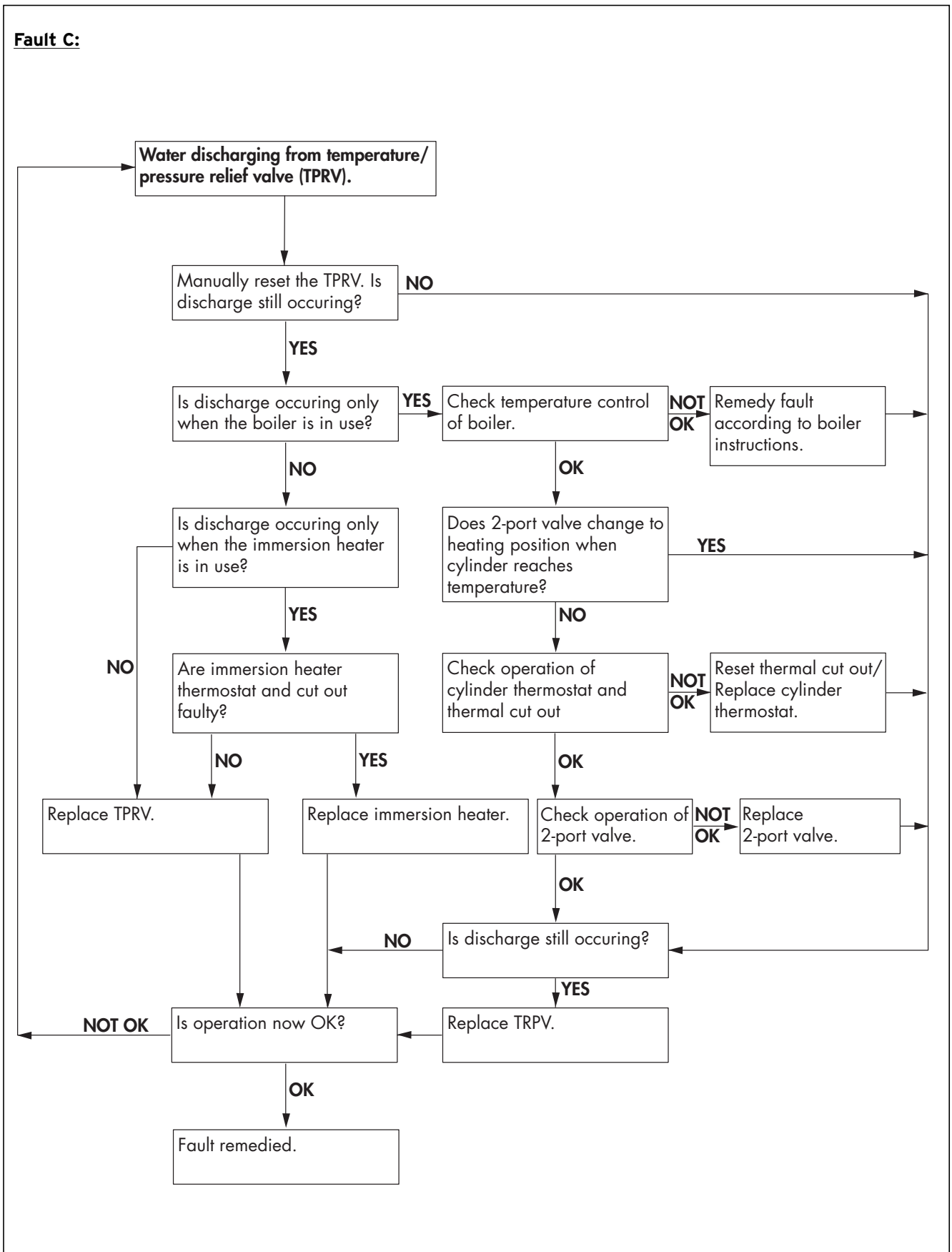


Fig. 17

Fault D:

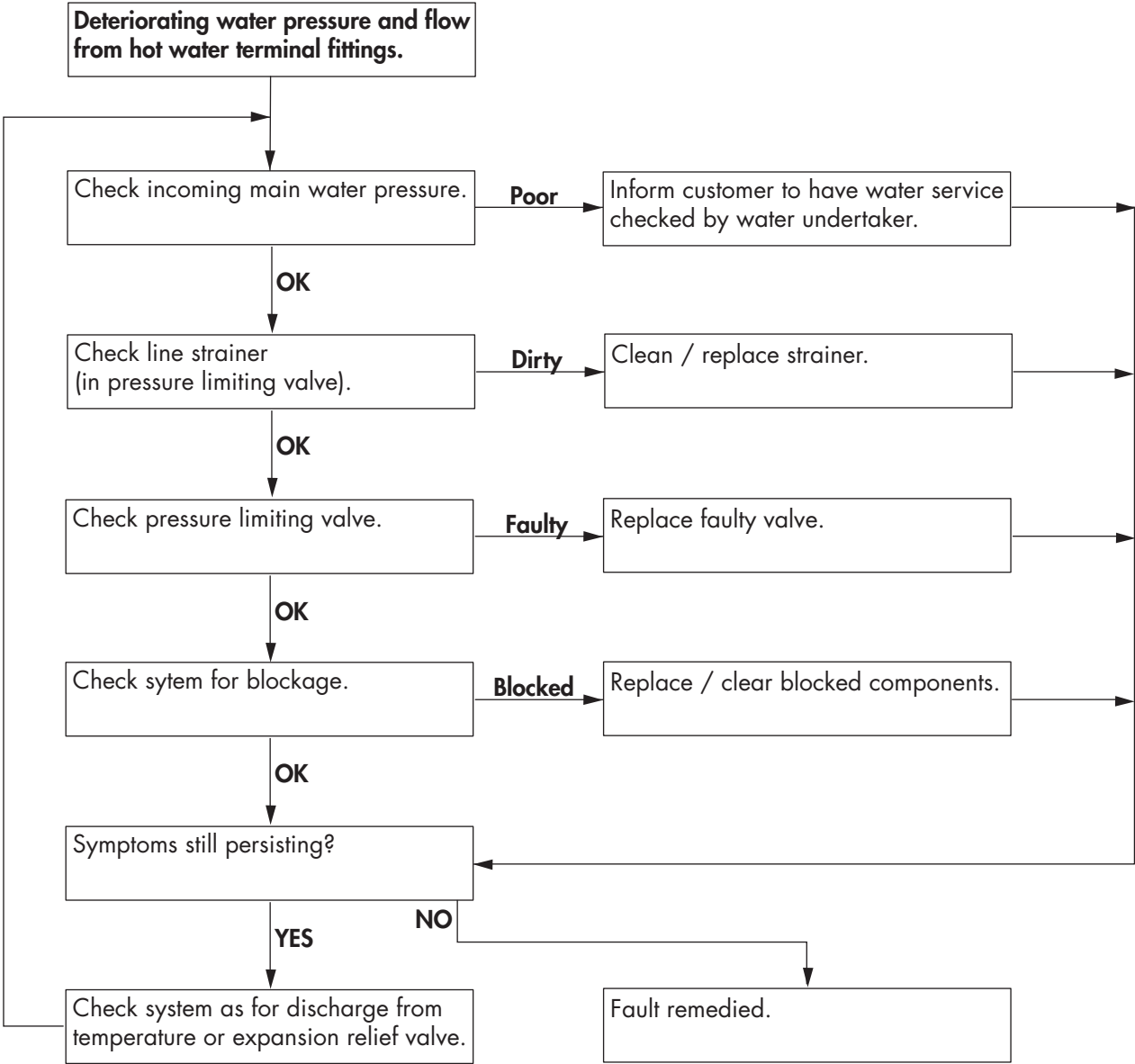


Fig. 18

COMMISSIONING CHECKLIST

MAINS PRESSURE HOT WATER STORAGE SYSTEM

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 _____
 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.

SERVICE INTERVAL RECORD

It is recommended that your heating system is serviced regularly and that you complete the appropriate Service Interval Record Below .

Service Provider. Before completing the appropriate Service Interval Record below, please ensure you have carried out the service as described in the boiler manufacturer's instructions. Always use the manufacturer's specified spare part when replacing all controls.

SERVICE 1 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 2 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 3 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 4 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 5 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 6 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 7 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 8 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 9 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

SERVICE 10 Date

Energy Efficiency Checklist completed? Yes No

Engineer Name _____

Company Name _____

Telephone Number _____

Engineer ID Number _____

Comments _____

Signature _____

Vaillant Ltd

Vaillant House ■ Medway City Estate ■ Trident Close ■ Rochester ■ Kent ME2 4EZ
Telephone 01634 292300 ■ Fax 01634 290166 ■ www.vaillant.co.uk ■ info@vaillant.co.uk

Vaillant GmbH

Berghauser Str. 40 ■ D-42859 Remscheid ■ Telefon 0 21 91/18-0
Telefax 0 21 91/18-28 10 ■ www.vaillant.de ■ info@vaillant.de