

RMcylinders

Indirect

INDIRECT UNVENTED STORAGE CYLINDER WITH *EXTERNAL* EXPANSION VESSEL

Indirect Single Coil, Indirect Twin Coil & Solar Direct

INSTALLATION MANUAL ISSUE 2-2018

FOR MORE INFORMATION GO TO:
WWW.RMCYLINDERS.COM



IMPORTANT

By installing this product you agree to be bound by the terms and conditions supplied within this manual, or available for download via our website.

INTRODUCTION

This corrosion resistant Unvented cylinder is made from Duplex Stainless Steel. It is highly insulated with environmentally friendly foam enclosed in a rust resistant white steel case.

It is available in Direct, and Indirect versions in a family of 7 sizes from 90 - 300 litres in Solar Twin Coil and Solar Direct. There is also a range of slimline units from 60 - 210 litres again in Direct and Indirect versions. To help ensure compliance with the relevant Water and Building Regulations all cylinder units are supplied complete with the necessary safety and control devices needed to connect to the cold water mains. In order to ensure high flowrate performance with minimum pressure drop even in lower pressure areas, pre-set high quality controls have been selected. This cylinder is approved to demonstrate compliance with Water Regulations and Building Regulations G3 & Part L.

STORAGE PRIOR TO INSTALLATION

This cylinder should be stored upright in a dry area and kept in its original packaging until immediately prior to installation.

INSTALLATION PREREQUISITES

This cylinder should only be installed by a competent installer holding their G3 unvented qualification, or be a member of a competent persons scheme. The installation of this product is also notifiable to Building Control under the Building Regulations.

ONCE COMPLETED THIS INSTRUCTION MANUAL IN ITS ENTIRETY SHOULD BE LEFT WITH THE HOME OWNER.

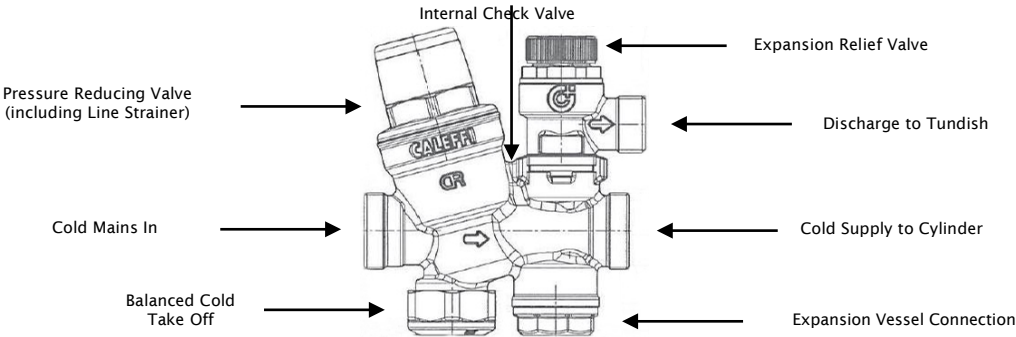
WHAT IS BENCHMARK

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the scheme.

Visit www.centralheating.co.uk

COLD INLET SET - THE CONNECTIONS



WHAT'S INCLUDED

| | |
|---|--------|
| Cold Water Inlet Set | LOOSE |
| 15 x 22mm Tundish | LOOSE |
| Temperature & Pressure Relief Valve | FITTED |
| Expansion Vessel | LOOSE |
| Expansion Vessel Bracket | LOOSE |
| Compression Nut Connection For Expansion Vessel | LOOSE |
| Immersion Heater(s) - Dependant on size & configuration | FITTED |
| Installation Manual | LOOSE |
| Benchmark Log Book - Found at the rear of this manual | LOOSE |

WATER SUPPLY

This cylinder is capable of delivering over 50 litres per minute when connected to a suitable mains supply. The high quality inlet control set with its 3 bar operating pressure has been designed to make the most of the pressure and flow available however the performance of any unvented system is only as good as the water supply.

In unvented systems both hot and cold services are supplied simultaneously from the mains so the maximum possible on-site water demand must be assessed and the water supply should be tested to ensure it can meet these requirements.

If necessary consult the local water supplier regarding the likely pressure and flow rate availability. It is important that site pressure readings are taken under dynamic flow conditions, high pressures under zero flow conditions are not necessarily indicative of satisfactory performance. A minimum of 1.5 bar at 20 l/m flow should be available. Where mains inlet pressures are likely to exceed 10 bar then an additional upstream pressure reducing device should be fitted.

A minimum of 22mm supply pipe-work should ideally be provided and existing 1/2" (15mm) cold mains pipe-work may need to be upgraded. Hard water treatment should be considered in areas where the CaCO₃ content is greater than 200ppm.

CHANGE OF WATER SUPPLY

The changing or alternating from one water supply to another can have a detrimental effect on the operation and/or life expectation of the water heater storage cylinder, pressure temperature relief valve and heating unit. Where there is a changeover from one water supply to another, e.g., a rainwater tank supply, bore water supply, desalinated water supply, public reticulated water supply or water brought in from another supply, then water chemistry information should be sought from the supplier or it should be tested to ensure the water supply meets the requirements given in these guidelines for the manufacturer's warranty to apply.

WATER CHEMISTRY

This water heater must be installed in accordance with this advice to be covered by the warranty. This water heater is manufactured to suit the water conditions of most public reticulated water supplies. However, there are some known water chemistries which can have detrimental effects on the water heater and its operation and/or life expectancy. If you are unsure of your water chemistry, you may be able to obtain information from your local water supply authority.

WATER CHEMISTRY LEVELS AFFECTING WARRANTY

The warranty of this water heater will not cover resultant faults on components including the storage cylinder where water stored in the storage cylinder exceeds at any time any of the following levels: -

| WATER COMPONENTS | MAXIMUM PERMITTED LEVELS |
|------------------------|--------------------------|
| TOTAL DISSOLVED SOLIDS | 600mg/Litre |
| TOTAL HARDNESS | 200mg/Litre |
| CHLORIDE | 300mg/Litre |
| MAGNESIUM | 10mg/Litre |
| CALCIUM | 20mg/Litre |
| SODIUM | 150mg/Litre |
| IRON | 1 mg/Litre |
| MAXIMUM pH | 9.5 |
| MINIMUM pH | 6.5 |

TOTAL DISSOLVED SOLIDS (TDS)

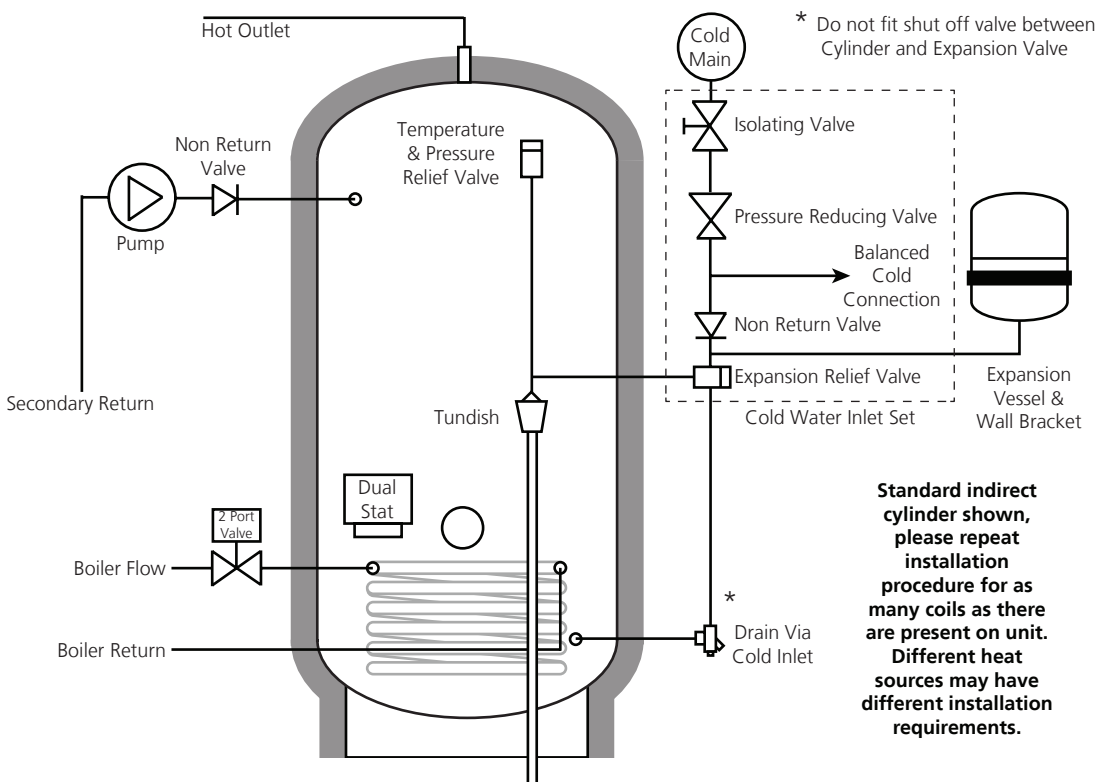
Some water analysis reports may state the conductivity of the water rather than the level of total dissolved solids. Conductivity, measured in micro siemens per centimetre (µS/cm), is directly proportional to the TDS content of the water. TDS, in mg/L, is approximately 70% of the conductivity in µS/cm. The warranty will not cover resultant faults to the storage cylinder if this water heater is connected at any time to a water supply where the TDS content of the water exceeds 600 mg/L. In locations where TDS approaches 600 mg/L, e.g. due to sediment, we strongly recommend fitting an appropriate filter to ensure water entering or in the water heater does not exceed this level at any time i.e. due to sediment build up.

SITING THE UNIT

This cylinder can be positioned more or less anywhere in the dwelling but it should be remembered that for every 1 metre that an outlet is above the cylinder, the pressure will be reduced by 0.1 bar. If siting outside the heated envelope of the dwelling such as in a garage or outbuilding then frost protection should be provided and exposed pipework should be insulated.

This cylinder must be supported on a flat base capable of supporting the weight of the cylinder when full. The minimum recommended cupboard size is 650mm square. It's important that consideration is given to access for maintenance of the valves. The immersion heaters are 400mm long and access space should be provided for possible future replacement, also adequate access to remove and re-install the cylinder in the event of a problem.

SCHEMATIC



COLD MAINS PIPEWORK & EXPANSION VESSEL

Run the cold main through the building to the place where the cylinder is to be installed. Take care not to run the cold pipe near hot water or heating pipe work so that the heat pick up is minimised. Identify the cold water supply pipe and fit an isolating valve (not supplied).

A 22mm BS1010 stopcock can typically be used but a 22mm quarter turn full bore valve would be better as it does not restrict the flow as much. Do not use “screwdriver slot” or similar valves.

Make the connection to the cold feed of the cylinder and incorporate a drain valve. Position the inlet control just ABOVE the Temperature & Pressure Relief Valve (TPRV) mounted on the side of the cylinder. This ensures that the cylinder does not have to be drained down in order to service the inlet control set. Ensure that the arrow points in the direction of the water flow. Select a suitable position for the expansion vessel. Mount it to the wall using the bracket provided. Use the compression connection supplied to connect the vessel into the cold water pipe adjacent to the cold feed point on the cylinder. There must be no obstruction or flow restriction between the cylinder and the expansion vessel.

BALANCED COLD CONNECTION

If there are to be showers, bidets or monobloc taps in the installation then a balanced cold supply is necessary. There is a 22mm balanced connection on the inlet control set. All outlets in the house will be at 3 bar and thus automatically balanced.

HOT WATER PIPEWORK

Run the first part of the hot water distribution pipework in 22mm. This can be reduced to 15mm and 10mm as appropriate for the type of tap etc. Your aim should be to reduce the volume of the hot draw off pipework to a practical minimum so that the time taken for the hot water is as quick as possible. Do not use monobloc mixer tap or showers if the balanced cold connection is not provided, the unit will back pressurise and result in discharge. Ensure that the top of the vessel is accessible for servicing.

PRIMARY COIL CONNECTIONS (INDIRECT ONLY)

Compression connections are provided for the primary circuit which must be positively pumped. Primary flow and return connections are interchangeable to suit site conditions without affecting reheat times. These connections are metric and should be changed by the installer if using Irish size copper tube.

Sealed or vented primary circuits can be used, to comply with normal installation practice the primary pressure should not exceed 3 bar although the cylinder coil is suitable for up to 7 bar if required. The boiler may be Gas, Electric, Oil etc but must be under effective thermostatic control. Uncontrolled heat sources such as some AGA's, back boilers, solid fuel stoves, etc may not be suitable please contact us for guidance. The two port zone valve should be installed into the primary flow pipework leading to the coil flow inlet. The direction of flow arrow should be towards the primary flow connection. On twin coil cylinders an extra thermostat boss is provided.

Maximum operating temperature of primary coils under normal circumstances is 85° C.

Ensure corrosion inhibitor compatible with stainless steel coils is used in the primary circuit.

SECONDARY CIRCULATION

Where secondary circulation is required a circulator suitable for potable water should be used in conjunction with a non return valve to prevent backflow. it may be necessary to incorporate an extra expansion vessel into the circuit to accommodate the increased system water volume in larger secondary circulation systems. Where off peak electrical tariffs are being used then secondary circulation should be avoided. A secondary return boss is fitted as standard on 210, 250 & 300L. On smaller sizes tee into the cold feed pipe above the drain.

IMMERSION HEATERS

As a requirement of Building Regulations the cylinder immersion heaters are fitted with thermal cut-out in addition to the normal control thermostat. To help ensure correct replacement the immersion heaters have a special 1 3/4" BSP thread. They are of a low noise Incoloy construction and rated at 3 kW at 240 V. Replacement immersion heaters should be purchased via ourselves otherwise your guarantee may be affected.

The 'O'ring on the head of the immersion heater should be correctly positioned and lubricated before fitting. Screw in hand-tight until almost sealed then gently tighten as the 'O' rings will seal easily. The electrical supply to each immersion heater(s) must be fused at 13A via a double pole isolating switch to BS 3456. The cable must be 2.5mm² heat resistant (85°C HOFR) sheathed flex complying to BS 6141:1981 Table 8. Do not operate the immersion heater(s) until the unit is full of water. If any sterilisation liquid is in the cylinder do not operate the immersion heater(s) as this will cause premature failure. Electric to be supplied by a fused supply compliant with local regulations, and fitted by a qualified Part P Electrician.

WIRING

As per instruction above, our 3kW immersion heaters **MUST** be wired in 2.5mm heat resistant cable, failure to do so can cause nuisance tripping and we will be unable to support your installation until this has been corrected.

COMMERCIAL / HEAVY DUTY / CONSTANT USE

For commercial / heavy duty installations where constant usage / reheat is required or where an external programmer designed for immersion heaters is not present then Titanium immersion heaters must be fitted in order to comply with the warranty.

ENERGY CUT OUT AND CYLINDER THERMOSTAT

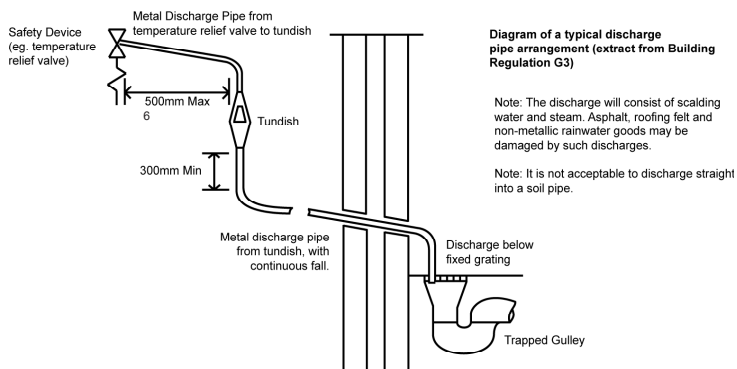
As a requirement of Building Regulations the cylinder units are fitted with a thermal cut-out in addition to the normal control thermostat. This unit should be fitted to the dedicated boss on the cylinder and wired to the two port valve controlling the primary flow.(see wiring diagram).

DISCHARGE ARRANGEMENT

Full detail of Building Regulation G3 is available as a free download from: www.planningportal.gov.uk. The discharge from both the temperature relief and expansion relief valves can be joined together via a 15mm end feed tee.

It is important that any discharge water does not collect in this pipe-work and can run freely to the tundish. The tundish should be mounted in a vertical and visible position located in the same space as the unvented hot water storage system and be fitted as close as possible and within 600mm of the safety device e.g. the temperature relief valve. The discharge pipe-work from the tundish must be routed in accordance with Part G3 of the Building Regulations.

The discharge pipe from the tundish should terminate in a safe place where there is no risk to persons in the vicinity of the discharge, be of metal and:



- 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 9m long i.e. discharge pipes between 9m and 18m equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device, between 18 and 27m at least 3 sizes larger, and so on. Bends must be taken into account in calculating the flow resistance. An alternative approach for sizing discharge pipes would be to follow BS6700 Specification for design installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.
- Have a vertical section of pipe at least 300mm long, below the tundish before any elbows or bends in the pipework and be installed with a continuous fall of at least 1 in 200 thereafter.
- Be installed with a continuous fall.
- Any discharge should be visible at the tundish. See regulations for instruction relating to dwellings occupied by persons with impaired vision or mobility.

From the tundish, pipework should terminate in a safe place where there is no danger to persons in the vicinity of the discharge. Examples of acceptable discharge arrangements include:

1. To a trapped gully with outlet below a fixed grating and above water seal.
2. Downward discharges to low level, within 100mm, above external surfaces such as car park, hard standing, grassed area with protective wire cage to prevent contact but retaining visibility of discharge.
3. Discharge at high level into metal hopper and metal downpipe with the termination point clearly visible or onto roof capable of withstanding high temperature discharge and at least 3m away from plastic guttering system.

Building Regulation G3 allows for the usage of non-metallic pipework within the tundish discharge (D2): The discharge pipe (D2) should be made of a) metal or b) other material that has demonstrated to be capable of safely withstanding high temperatures of water discharged and is clearly and permanently marked to identify the product and the performance standard. The discharge should not be connected to a soil discharge stack unless it can be demonstrated of safely withstanding the high temperature of water discharge, in which case it should;

1. Contain a mechanical seal, not a water trap, which allows water into the branch pipe but not foul air from the drain to be ventilated through the tundish.
2. Be a separate branch pipe with no sanitary appliances connected to it.
3. Plastic pipes used as branch pipes with the discharge should be Polybutylene (PB) or cross linked polythene (PE-X) complying with national standards such as Class S of B7291-2:2006 or Class S of BS7291-3:2006 respectively.
4. Be continuously marked with a warning that no sanitary appliances should be connected to the pipe.
5. Plastic pipes should be joined and assembled with fittings appropriate to the circumstances in which they are used as set out in BS EN 1043-1:2002.

THE FOREGOING IS AN APPRAISAL OF BUILDING REGULATION DETAIL AND IT IS ESSENTIAL THE INSTALLER GAINS KNOWLEDGE OF THE FULL REQUIREMENTS PRIOR TO PRODUCT INSTALLATION.

IMPORTANT

QUERIES WITH REGARD TO DISCHARGE ARRANGEMENT, CONTACT YOUR LOCAL BUILDING CONTROL OFFICE.

TWIN COIL FORMAT

Indirect twin coil units can be installed in two separate formats:

- In a solar powered system with a backup boiler.
- In a system with two non-solar heat sources (normally two boilers).

With either format it is essential that the installation meets all current regulations including, in particular, the high limit cut out requirements of Building Regulation G3.

UPPER COIL

This is connected to the boiler as per the instructions for a single coil cylinder with the high limit thermostat inserted into the middle thermostat pocket and wired to control the supplied two port valve in either the primary flow or return as indicated in the wiring instructions.

LOWER COIL - SOLAR VARIANT

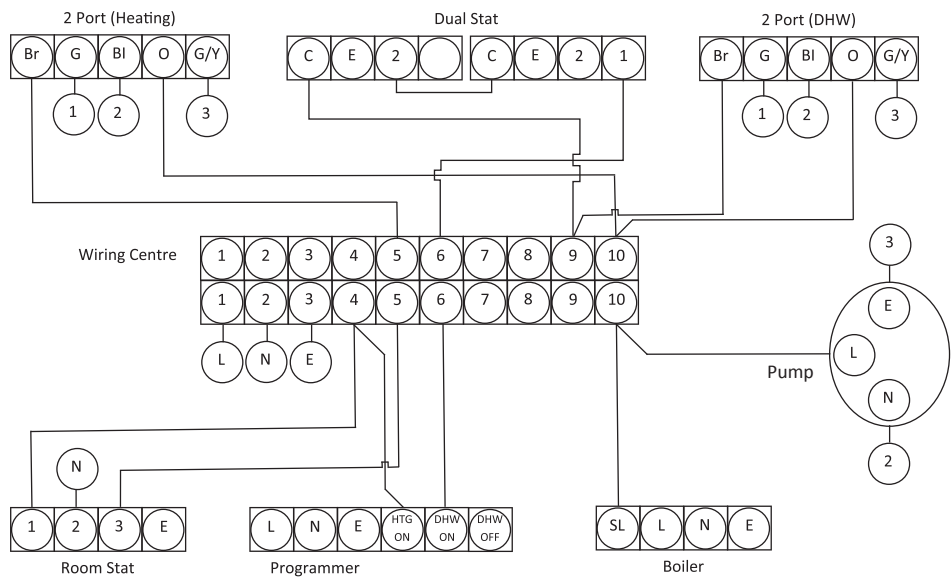
In a solar system the lower coil is connected to the solar heat source. Either primary coil connection may be used for flow or return. The solar cylinder sensor supplied is inserted into the lower thermostat pocket and the energy cut out into the upper pocket. The 'mechanical' control thermostat is not normally utilised in a solar system. In systems where the panels are above the cylinder then the energy cut out shall be wired so as to interrupt the power supply to the solar pump or controller in the event of over temperature.

In systems where the cylinder is above the panels then the energy cut out should be wired to a suitable two port valve (not supplied) on the return pipe-work to the solar panel.

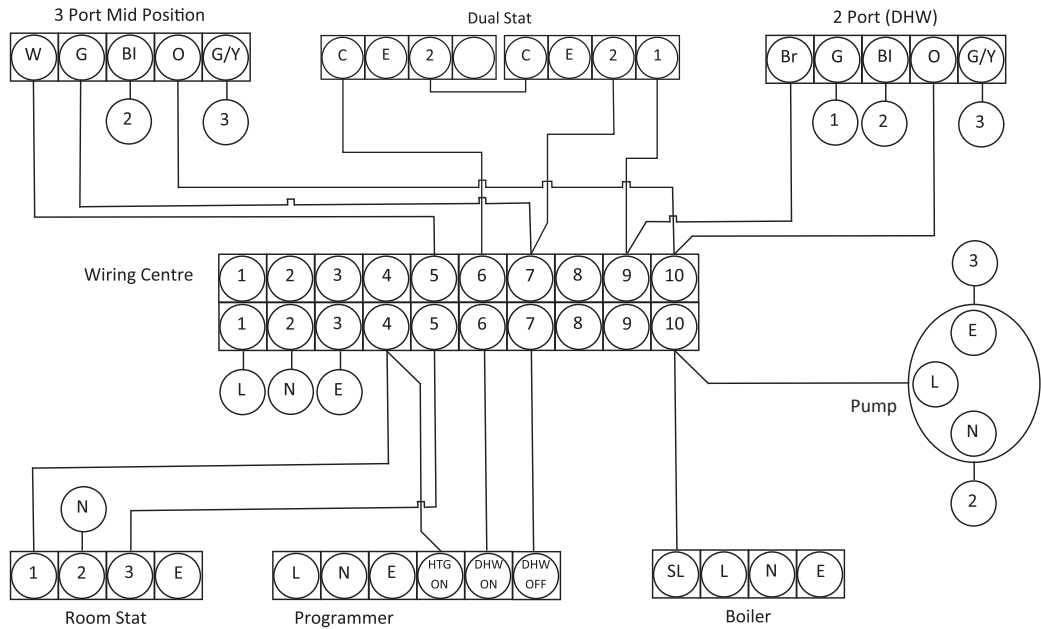
LOWER COIL - NON SOLAR VARIANT

This is connected to the additional boiler as per the instructions for a single coil cylinder with the high limit thermostat inserted into the lower thermostat pocket and wired to control the supplied two port valve in either the primary flow or return.

TYPICAL WIRING - S PLAN, 1 ZONE



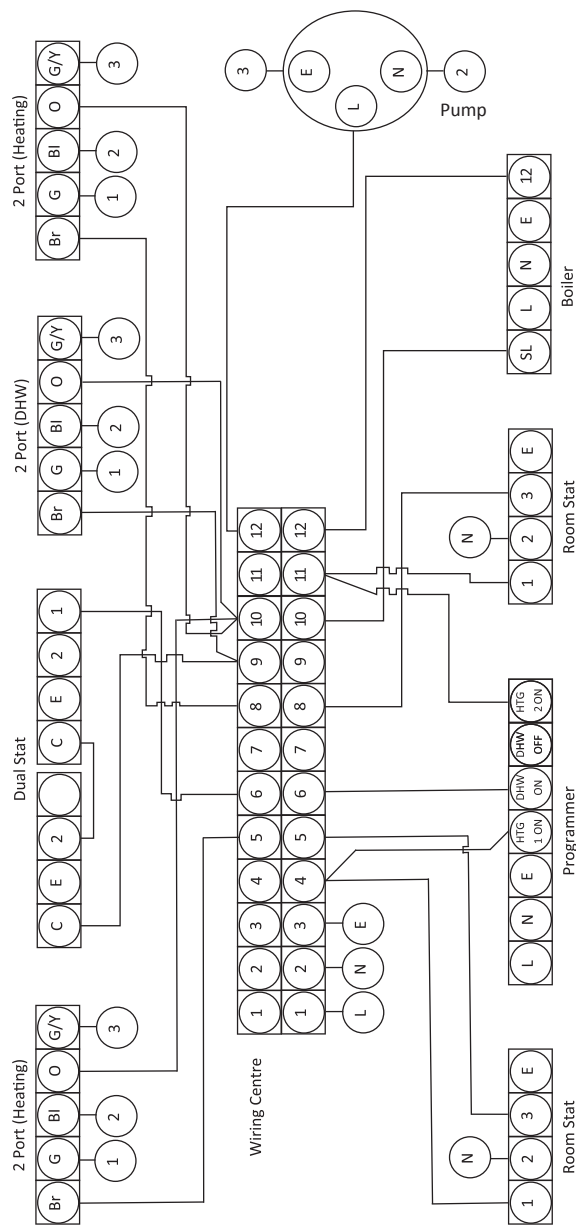
TYPICAL WIRING - Y PLAN



COLOUR CODES

W=WHITE G=GREY BL=BLUE G/Y=GREEN/YELLOW BR=BROWN
L=LIVE N=NEUTRAL C=COMMON SL=SWITCHED LIVE E=EARTH

TYPICAL WIRING - S PLAN, 2 ZONE



COLOUR CODES

W=WHITE G=GREY BL=BLUE G/Y=GREEN/YELLOW BR=BROWN
L=LIVE N=NEUTRAL C=COMMON SL=SWITCHED LIVE E=EARTH

COMMISSIONING - FILLING THE SYSTEM

Check all connections for water tightness including any factory made connections such as the temperature and pressure relief valve as these may have loosened during transit. The pressure in the expansion vessel should be checked to ensure it is 3 bar (45PSI). The valve is of the car tyre (Schrader) type. The hot tap furthest away from the cylinder should be opened before filling the system to let air out. The system should be flushed before use. The remaining taps should be opened in turn to expel air. The Benchmark Commissioning Checklist shall be completed upon commissioning by the installer.

IMMERSION HEATERS

The system must be fully filled and flushed before switching on the power to the immersion heaters and allowing the unit to heat up. The immersion heater is supplied preset at 60°C. Turning fully to + sets to approx 65°C.

INDIRECT UNITS

Ensure the lever on the two port valve is set to the filling position and use the boiler manufacturers commissioning instructions to fill the primary circuit. When full release the lever. Switch the programmer to Domestic Hot water (DHW) and allow the unit to start to heat. Adjust the dial of the dual thermostat to between 55°C and 60°C as required.

RECOMMENDED STORAGE TEMPERATURE

For domestic usage a temperature set of 55°C-60°C is the norm. This is above recognised bacterial growth levels and low enough to prevent nuisance tripping of limit thermostats or unnecessary scaling.

SAFETY VALVE CHECKS

Any water coming from either the expansion relief valve or the temperature / pressure relief valve during heat up is indicative of a problem which needs to be identified and rectified. The temperature relief and expansion relief valves should be fully opened, one at a time then both together allowing as much water as possible to flow through the tundish. Check that your discharge pipework is free from debris and is carrying the water away without spillage over the tundish and release the valves and check that they re-seat properly.

DRAINING

Isolate from the electrical supply to prevent the immersion heaters burning out. Isolate the unit from the cold mains. Attach a hose to the draining tap ensuring it reaches to a level below the unit (This will ensure an efficient syphon is set up and the maximum amount of water is drained from the unit). Open the hot tap closest to the unit and open the draining tap.

WARNING!

WATER DRAINED OFF MAY BE VERY HOT!

ANNUAL SERVICING

A competent installer should carry out the following checks on an annual basis, ideally at the same time as the annual boiler service.

1. The expansion relief valve on the inlet control set should be eased open allowing water to flow for 5 seconds. The valve should then be closed making sure it resets correctly. Repeat this procedure with the pressure / temperature relief valve. Always insure that the discharge pipework is allowing the water to drain away adequately. If not check for blockages etc. and clear.
2. Ensure that any immersion heaters that are fitted are working correctly and that they are controlling the water at a temperature of between 55°C and 60°C.
3. Make sure the pressure in the expansion vessel is charged to 3 bar. Turn off the water supply to the unit and open a hot tap first. The valve on the expansion vessel is a Schrader (standard car tyre) type. Air or CO2 can be used to repressurise the expansion vessel.
4. Remove the head on the inlet control set by unscrewing, and clean the mesh filter within.
5. The benchmark service record supplied within this manual shall be updated at each service by the installer.

SERVICING

SERVICING MUST BE CARRIED OUT ANNUALLY & SHOULD ONLY BE CARRIED OUT BY COMPETENT INSTALLERS AND ANY SPARE PARTS USED MUST BE PURCHASED FROM US. NEVER BYPASS ANY SAFETY DEVICES OR OPERATE THE UNIT WITHOUT THEM FULLY OPERATIONAL.

YOUR GUARANTEE MAY BE VOID WITHOUT PROOF OF ANNUAL SERVICING. THE COMMISSIONING CERTIFICATE SUPPLIED AT THE REAR OF THIS MANUAL SHOULD ALSO BE COMPLETED BY THE INSTALLER.

GUARANTEE

This cylinders stainless steel vessel carries a 25 year guarantee against faulty materials or manufacture provided that: It has been correctly installed as per this document and all the relevant standards, regulations and codes of practice in force at the time, and the Benchmark Commissioning Checklist has been completed.

- It has not been modified in any way, other than by the manufacturer.
- It has not been misused, tampered with or subjected to neglect.
- It has only been used for the storage of potable water.
- It has not been subjected to frost damage.
- The unit has been serviced annually.
- The benchmark service record has been filled in after each annual service by the installer.
- The guarantee period starts from the date of purchase and no registration is required.
- The extended guarantee is not transferable, and rests with the original householder.
- The system is fed from a public mains water supply.
- Store temperatures do not exceed 65oC.
- Installations are made only in the UK & Republic Of Ireland.
- The water supply does not have a Chloride content greater than 300ppm.
- Units are not installed with uncontrollable heat sources (E.g. Wood Burning Stoves).
- For commercial / heavy duty installations where constant usage / reheat is required Titanium immersion heaters must be fitted in order to comply with the warranty.

Please note that invoices for servicing may be requested to prove that the unit has been serviced annually.

All the components fitted to / or supplied with the cylinder carry a 2 year guarantee. The guarantee starts when the cylinder is first filled.

EXCLUSIONS

THE EFFECTS OF SCALE BUILD UP. ANY LABOUR CHARGES ASSOCIATED WITH REPLACING THE UNIT OR ITS PARTS. ANY CONSEQUENTIAL LOSSES CAUSED BY THE FAILURE OR MALFUNCTION OF THE UNIT.

CLAIMS

ON THE RARE OCCASION WHEN A FAULT OCCURS WE WILL ONLY CONSIDER SENSIBLE BROKEN DOWN CLAIMS SUBMITTED IN FULL AT THE THE TIME THE FAULTY PART / CYLINDER IS RETURNED.

WE WILL NOT COVER CLAIMS FOR EXCESSIVE TRAVELLING TIME WHERE AN INSTALLER HAS CHOSEN TO ACCEPT A JOB MORE THAN 30 MILE FROM THEIR BASE.

COSTS CAN NOT BE RECOVERED FOR THE REMOVAL OF A FAULTY UNIT FROM A DIFFICULT TO REACH AREA, OR AREA WHERE THE CYLINDER ACCESS HAS BEEN RESTRICTED, THIS IS IN CONTRADICTION WITH OUR INSTALLATION GUIDELINES WHERE A UNIT SHOULD ALWAYS BE ALLOWED SUITABLE PROVISION FOR REPLACEMENT.

CLAIMS WILL NOT BE ACCEPTED FOR UNITS THAT HAVE NOT BEEN INSTALLED IN ACCORDANCE WITH THIS MANUAL.

GUIDANCE IN THE EVENT OF A PROBLEM

If you have a problem in the first year contact the plumber who fitted the unit. Thereafter contact the plumber who carries out the annual servicing for you. If your cylinder develops a leak we will supply you with a new one. We ask for an up-front payment to prevent fraud.

We will require the original unit to be returned to us for inspection along with a copy of your service record and commissioning checklist. If it is confirmed that it has failed within the terms of the warranty your upfront payment will be refunded. If a component part fails within the two year guarantee period we will send you a new one again with an upfront charge. Credit card details may be taken to prevent fraud. We ask you to post the faulty part back to us within one month by recorded delivery. Once the part has been tested and proven faulty a refund will be issued.

USER INSTRUCTION

Your stainless system is automatic in normal use and requires only annual servicing. You should employ an competent installer to perform the annual servicing. Normally this is timed to coincide with the annual boiler service.

DISCHARGE AT THE TUNDISH

IF WATER IS FLOWING FROM THE SAFETY VALVES THROUGH THE TUNDISH THIS INDICATES A FAULT CONDITION AND ACTION IS NEEDED.

If this water is hot turn the boiler and / or the immersion heater off. Do not turn off the water until the discharge runs cool. The discharge may also stop.

CALL A COMPETENT PLUMBER OUT TO SERVICE THE UNIT.

Tell them you have a fault on an unvented cylinder. We stock all the spare parts they may need.

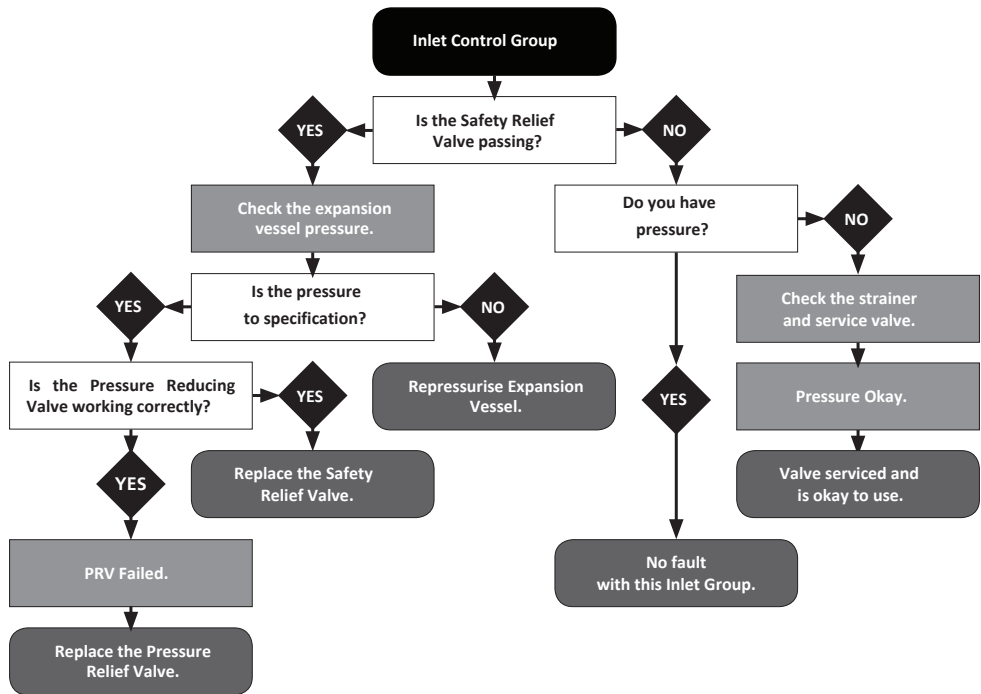
UNVENTED CYLINDER - FAULT FINDING

| Symptoms. | Possible Causes | Follow up action. |
|---|--|--|
| Cylinder appears to leak from within the case. | Loose cylinder connection. | Check all connection points including immersion heaters to ensure integrity of joint and remake any suspect joints. |
| Expansion Valve operates and water is visable at the Tundish. | Possible fault at Pressure Reducing Valve. | Follow fault finding information for Inlet Control Group. |
| | Back pressure from the system. | Check all mixer type outlets are served by a balanced cold service. Where not repipe or install bespoke pressure reducing valve to offending outlet. |
| Expansion Valve operates when cylinder is heated. | Possible fault at Expansion Vessel. | Follow fault finding information for Expansion Vessel. |
| Noise when operating tap outlet. | Insecure Pipework. | Increase the number of pipe clips. |
| Reduced water flow. | External works to public mains. | Wait for works to be completed. |
| | Debris from water mains. | Strip & clean or replace Inlet Control Group. |
| | Pressure Reducing Valve sticking. | Strip & clean or replace Inlet Control Group. |
| | | |
| No hot water available. | Immersion heater failure. | Follow fault finding information for Immersion Heater |
| | Boiler failure. | Check operation of the boiler and its controls. |

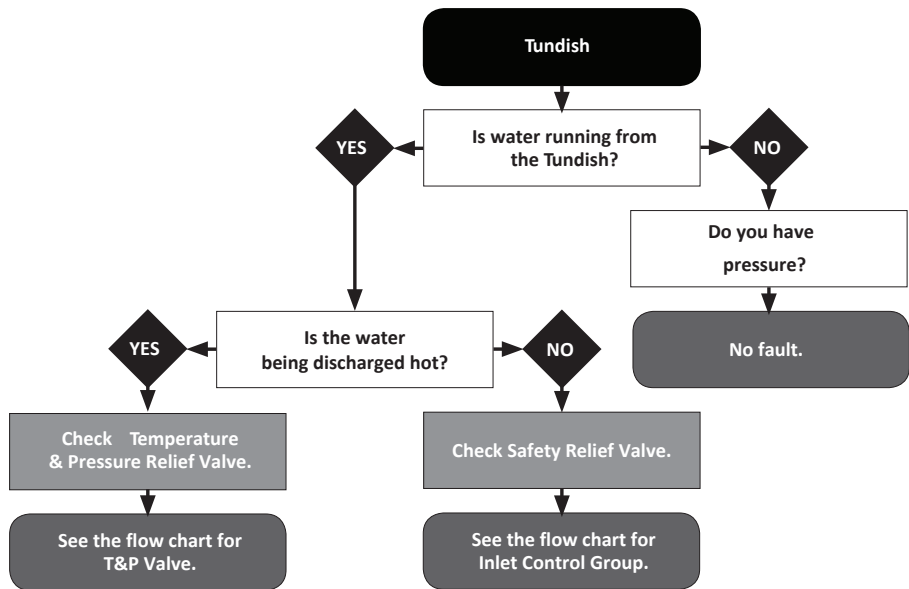
EXPANSION VESSEL - FAULT FINDING

| Symptoms. | Possible Causes | Follow up action. |
|--|---|--|
| Discharge of water from the Relief Valve. | Expansion Vessel is too small. | Vessel needs resizing and installation by appropriately qualified engineers. |
| | Pre-charge set incorrectly on vessel installation. | Pre-charge requires setting while system is de-pressurised according to cylinder manufacturers recommendations. |
| | Membrane is ruptured and may require replacement. | Replace membrane or entire vessel. Inspect Shrader valve for leaks or damage. |
| | Membrane may be partially de-pressurised due to natural losses and require re-pressurisation. | Re-pressurise or consider replacement depending on age of vessel and amount of pressure lost. Inspect Shrader valve for leaks or damage. |
| Leak from Flange or Water Connection. | Failure of Flange Plate. | Replace Flange Plate or entire Vessel. |
| | Loss of torque in Flange retaining bolts. | Re-tighten bolts as needed. |
| | Ruptured membrane has caused corrosion of vessel body resulting in pinhole leak. | Entire Vessel must be replaced. Inspect Shrader valve for leaks or damage. |
| Vessel appears to be fully of liquid when system is cold. | Membrane is de-pressurised. | Replace membrane or entire vessel. Inspect Shrader valve for leaks or damage. |
| Water is discharged from vessel when Shrader pin is de-pressed for inspection of air pressure. | Membrane is ruptured. | Membrane or vessel requires replacement. |

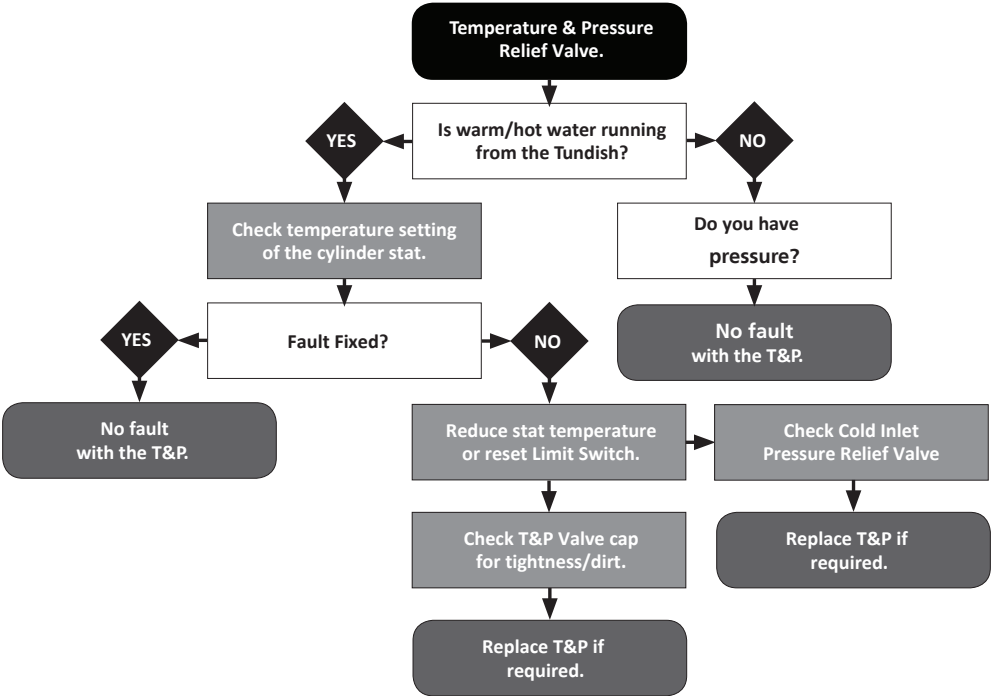
INLET CONTROL GROUP - FAULT FINDING



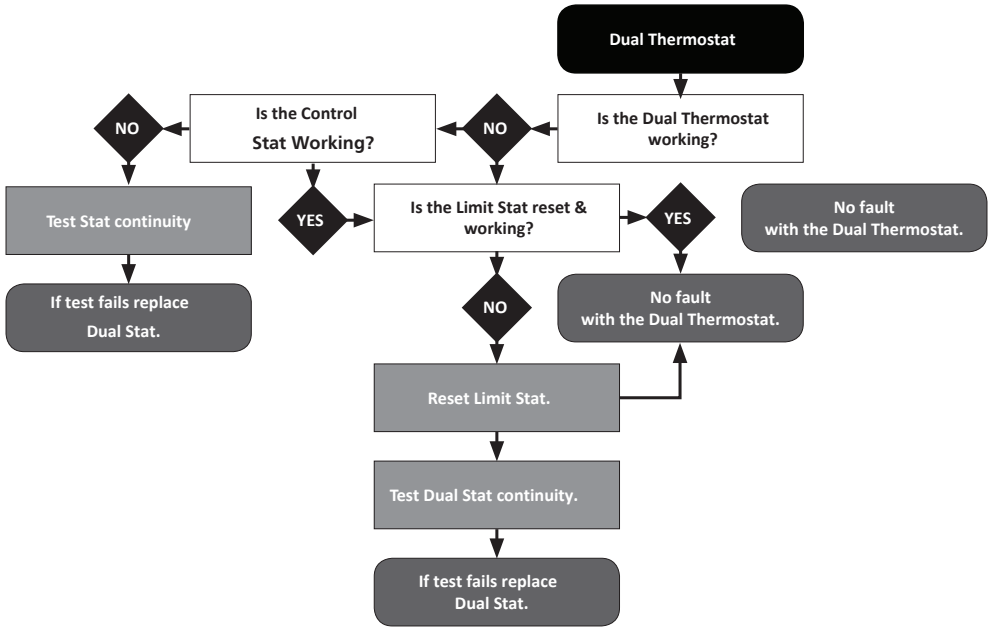
TUNDISH - FAULT FINDING



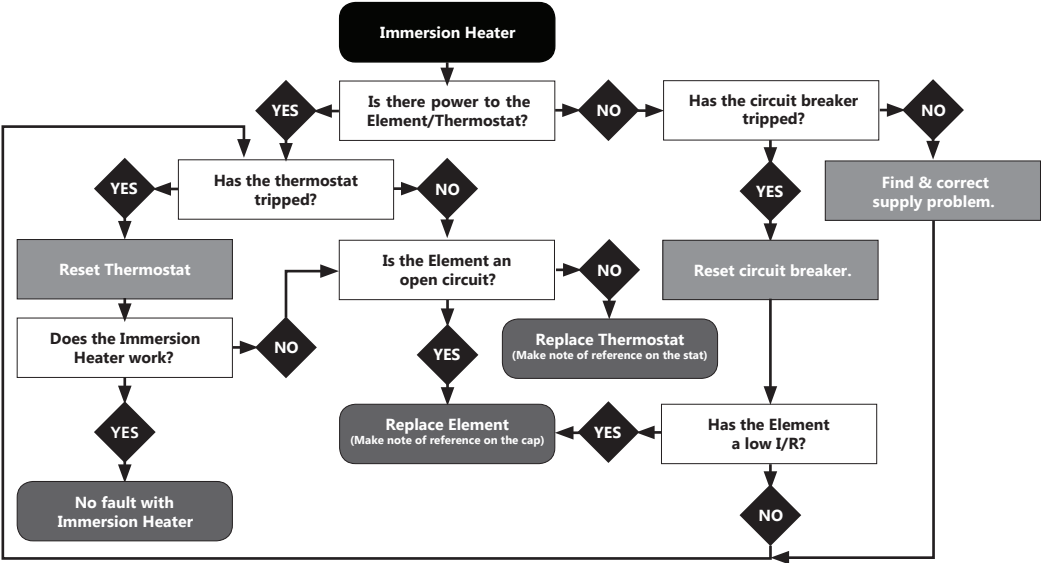
T&P VALVE - FAULT FINDING



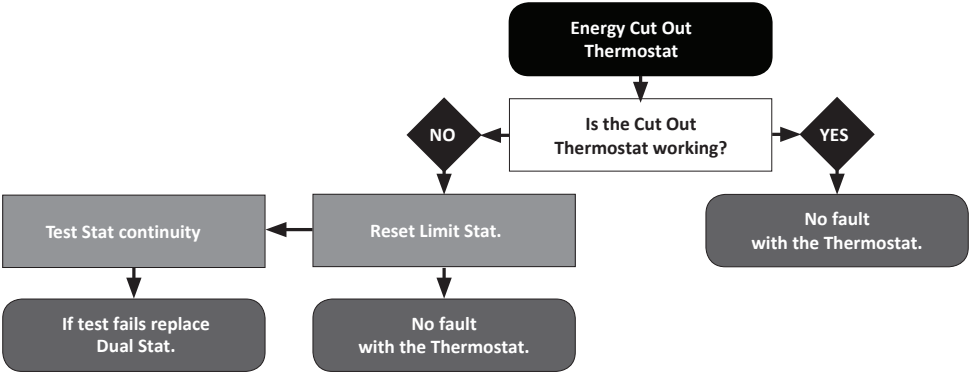
DUAL THERMOSTAT - FAULT FINDING



IMMERSION HEATER - FAULT FINDING



ENERGY CUT OUT - FAULT FINDING



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 Regulation 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 meter 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 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

THE HWA CHARTER

The Charter offers consumers quality assurance, product satisfaction, and confidence in the manufacturer, that they will deliver a service beyond just supplying the product.

The HWA Charter Code of Practice requires that, all members adhere to the following:

- To supply fit for purpose products clearly and honestly described.
- To supply products that meet, or exceed appropriate standards and building and water regulations.
- To provide pre and post sales technical support.
- To provide clear and concise warranty details to customers.



