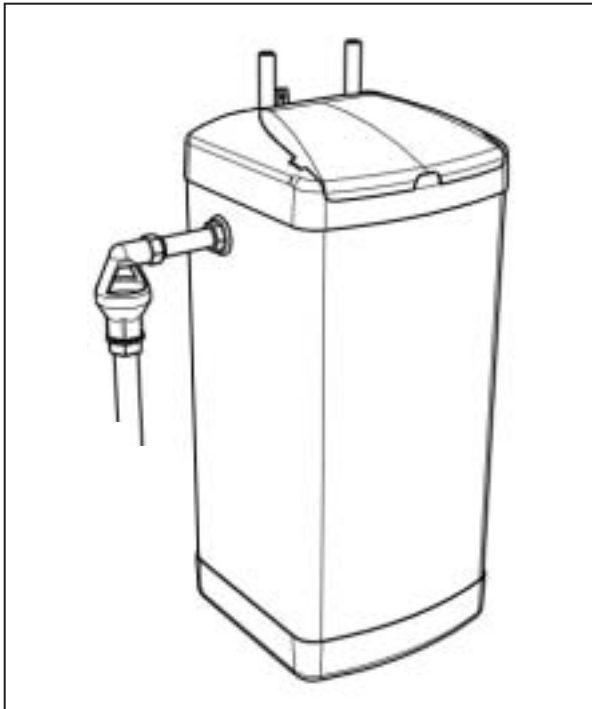


SANTON

Installation and User Instructions Aqualine Unvented Water Heaters Models: AL07/3, AL10/3, AL15/3, AL15/4.5



Please read and understand these instructions before starting work.

Please leave this leaflet with the user following installation

PACK CONTENTS

Heater, Tundish, Service Valve, Discharge Pipe, Grommet,
Fixing screws and plugs, Installation and User Instructions.

WARNING

This water heater must only be installed by qualified persons.

36005790 Issue 4.

INTRODUCTION

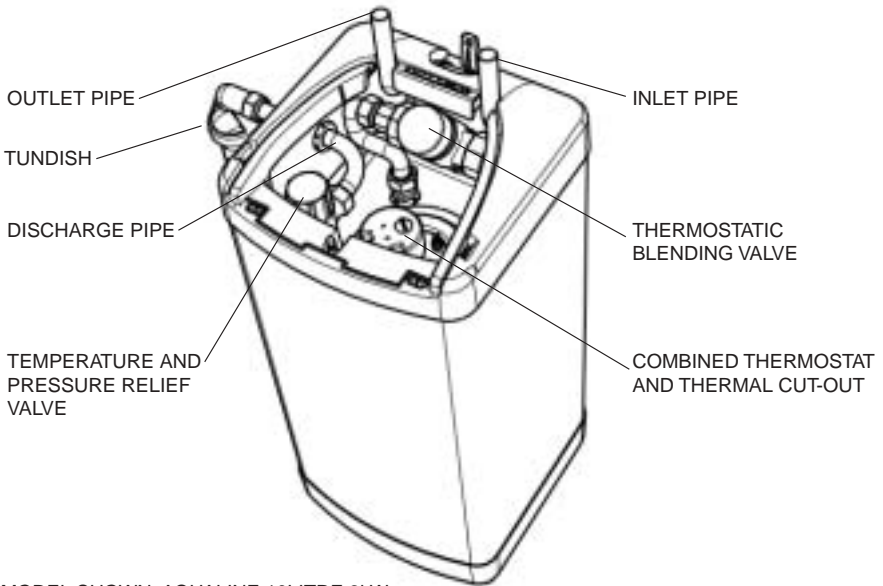
The Aqualine is an Unvented water heater which can supply multiple outlets. It is supplied with an internally fitted TMV2 Thermostatic Blending Valve and Temperature and Pressure Relief Valve (see Figure 1 below).

The temperature setting of the thermostat (6-66°C) must be above the set temperature on the Thermostatic Blending Valve (35-60°C). Where possible the thermostat setting should be at least 15°C above Thermostatic Blending Valve setting; the higher the temperature of the stored water, the larger the volume of 'useable water' available at the required discharge temperature.

The Temperature and Pressure Relief Valve is fitted to give the user a higher level of safety. A discharge outlet pipe for the Temperature and Pressure Relief Valve and Tundish is supplied and must be connected as detailed in section 4.

Please read and understand these instructions prior to installing your Aqualine unvented water heater. Particular attention should be paid to the section headed **IMPORTANT INSTALLATION POINTS**. Following installation and commissioning the operation of the heater should be explained to the customer and these instructions left with them for future reference.

FIGURE 1 : INTERNAL AQUALINE CONTROLS.



TECHNICAL SPECIFICATION

Electrical rating	2.75/3kW @ 230/240V ~
.....	4.1/4.5kW @ 230/240V ~
Capacities.....	7, 10 or 15 litres
Weight (full).....	7 litre - 13.5 kg
.....	10 litre - 17.5 kg
.....	15 litre - 26.6 kg
Rated pressure.....	6 bar (0.6 MPa)
Minimum recommended supply pressure.....	0.8 bar (0.08 MPa)
Temperature/Pressure Relief Valve.....	90°C/7 bar

1.0 IMPORTANT INSTALLATION POINTS

1.1 The Aqualine unvented water heater **MUST** be fitted with a Pressure (Expansion) Relief Valve. The factory fitted Temperature and Pressure Relief Valve can fulfill this function.

FAILURE TO PROVIDE ADEQUATE PRESSURE RELIEF WILL INVALIDATE ANY GUARANTEE AND LEAD TO A DANGEROUS INSTALLATION

1.2 Expansion can take place within the cold water supply **PROVIDED THAT BOTH** :

(a) Backflow in the main is not prevented by any stopvalve with loose jumper, check valve, pressure reducing valve or similar, **AND**

(b) Hot water expansion **does not** enter a branch to a cold water outlet (see Figure 2 for expansion pipe lengths).

N.B. Both the above conditions must be met. Additionally expansion within the cold water supply will not be possible if the static supply pressure exceeds 4.1 bar (60p.s.i.).

1.3 If any of the conditions in 1.2 above cannot be met expansion must be accommodated using an Expansion Vessel. To ensure all expansion takes place in the vessel a Non Return Valve **must** also be fitted together with a Pressure (Expansion) Relief Valve (see Figure 2). Use Accessory Pack ALK02 (94970009).

1.4 If the static supply pressure exceeds 4.1 bar (60p.s.i.) a Pressure Reducing Valve must be fitted to the cold main supply. If a Pressure Reducing Valve is used an Expansion Vessel must also be used (see Figure 3). Use Accessory Pack ALK01 (94970008).

1.5 The installation must be carried out in accordance with the relevant requirements of:

- The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland) or Building Regulations (Northern Ireland).
- The Water Fittings Regulations or Water Byelaws in Scotland.

WARNING: IF WATER FLOWS FROM THE PRESSURE RELIEF VALVE OR TEMPERATURE/PRESSURE RELIEF VALVE THE ELECTRICITY SUPPLY MUST BE SWITCHED OFF IMMEDIATELY. CONTACT THE SANTON SERVICE TEAM (TEL: 08701 600125) OR AN APPROVED INSTALLER.

FIGURE 2 : FOR INLET WATER PRESSURES UP TO 4.1 BAR (60 P.S.I.) - NO ADDITIONAL KITS USED.

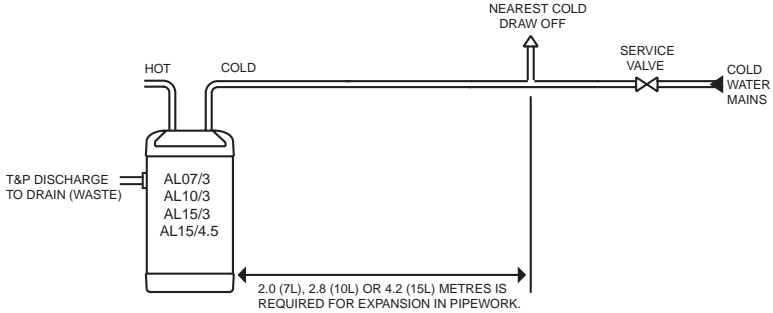


FIGURE 3 : FOR INLET WATER PRESSURES UP TO 4.1 BAR (60 P.S.I.) WHERE EXPANSION IN MAIN SUPPLY IS NOT POSSIBLE - USING KIT ALK02 (94970009)

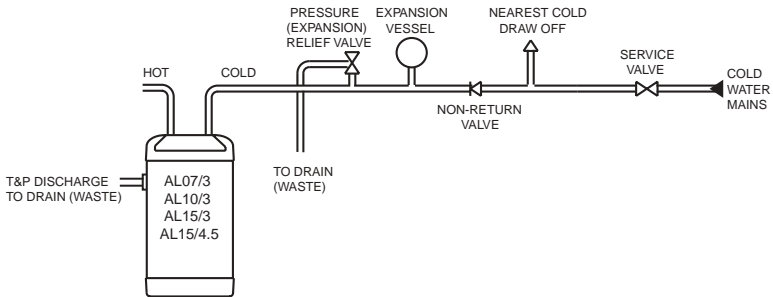
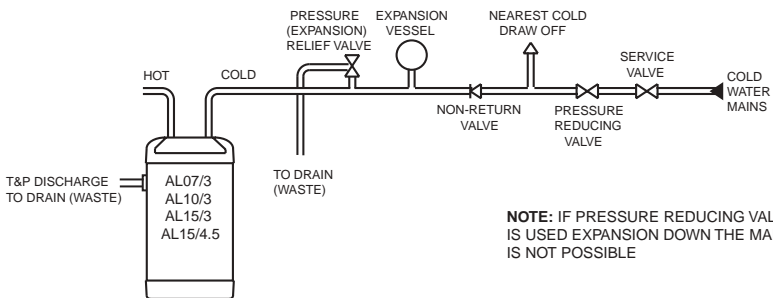


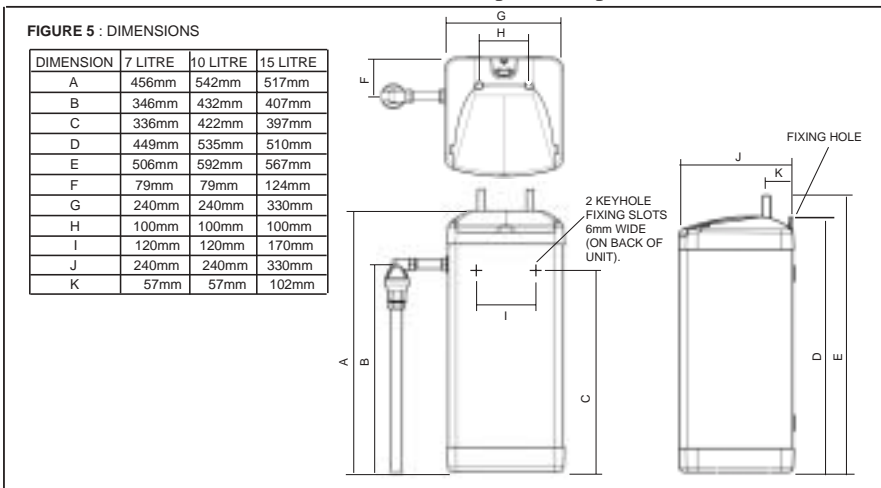
FIGURE 4 : FOR INLET WATER PRESSURES ABOVE 4.1 BAR (60 P.S.I.) - USING KIT ALK01 (94970008)



NOTE: IF PRESSURE REDUCING VALVE IS USED EXPANSION DOWN THE MAINS IS NOT POSSIBLE

2.0 INSTALLATION - GENERAL REQUIREMENTS

- 2.1** National Wiring rules may contain restrictions concerning the installation of these units in bathrooms.
- 2.2** The water heater should be vertically wall mounted using the screws and plugs provided. Position the bottom two screws as shown in Figure 5 with heads 3mm from the wall. Hang the Heater and secure with the top screw.
Alternatively the water heater can be floor mounted on its base. The water connections must always be to the top of the unit.
- 2.3** Enough space should be left at the top above the unit for pipe connections and access to the Temperature and Pressure Relief Valve. Refer to Figure 5 and the Dimensions Table to determine a suitable position for the heater.
- 2.4** NOTE: Ensure that the wall can support the full weight of the unit (see TECHNICAL SPECIFICATIONS) and that there are no hidden services (electricity, gas, or water) below the surface of the wall.
- 2.5** DO NOT install the water heater where it may freeze.
- 2.6** Refer to the section IMPORTANT INSTALLATION POINTS to determine which valves and accessories are required. Plumb in the valves in the sequence shown in the relevant Diagrams (Figures 2, 3, and 4).
- 2.7** Both inlet and outlet pipes are clearly labeled. The pipes are 15mm copper tube and are suitable for compression fittings.
The WRAS listed isolating valve (supplied) must be fitted on the cold water supply to the heater. Several hot outlets can be served.
- 2.8** Do not use solder joints as this will damage the heater and may prevent servicing under warranty.
- 2.9** Plumbers Paste must not be used as it can impair the operation of the valves.



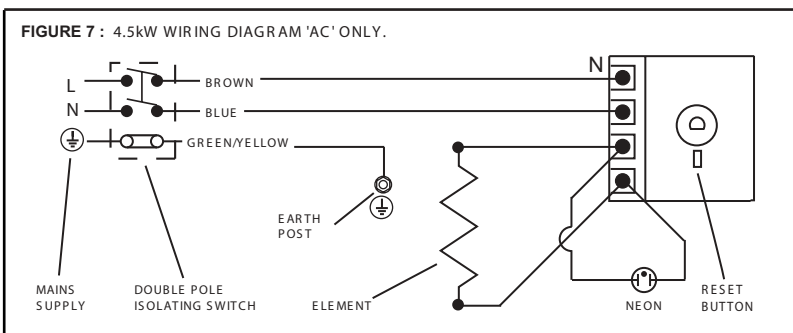
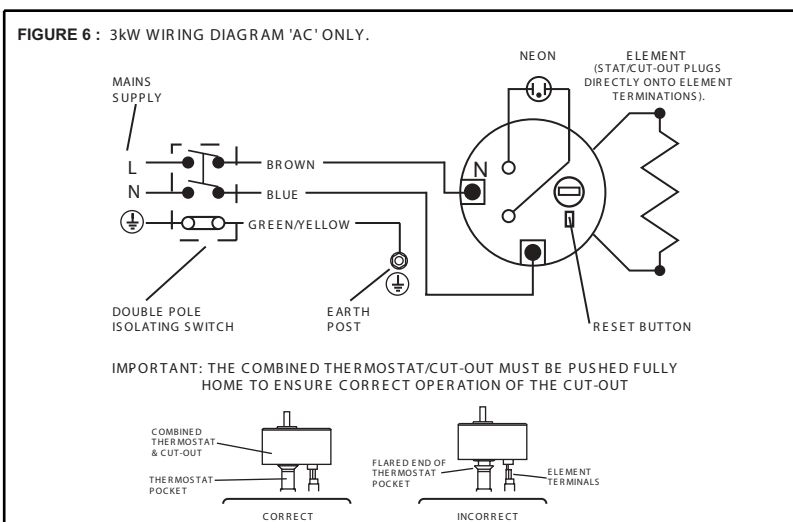
3.0 INSTALLATION - ELECTRICAL REQUIREMENTS

WARNING: This appliance must be earthed. It is suitable for a.c. supply only. Disconnect the electrical supply before removing the terminal cover. Installation must be in accordance with the current I.E.E. Wiring Regulations.

3.1 The unit is supplied fitted with a 0.75m 3 core 1.5mm² flexible cable on the 3kW model or a 0.75m 3 core 2.5mm cable on the 4.5kW model. The electricity supply should be fused 13 Amp for a 3 kW model and 20 Amp for a 4.5kW model and be via a double pole isolating switch with a contact separation of at least 3mm in both poles. Refer to the schematic wiring diagrams below.

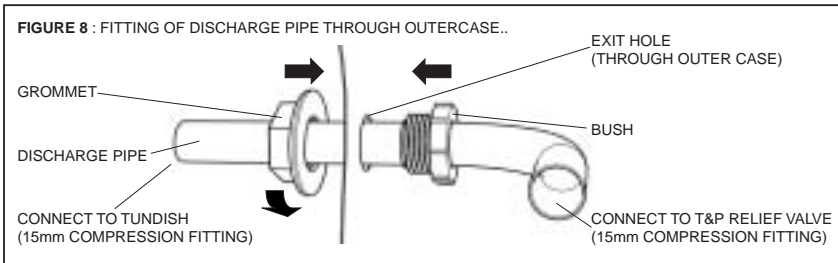
3.2 The wires are colour coded as follows:

Green and Yellow	EARTH	⊕
Brown	LIVE	(L)
Blue	NEUTRAL	(N)



4.0 INSTALLATION - DISCHARGE PIPE REQUIREMENTS

- 4.1 The discharge outlet from the Temperature and Pressure Relief Valve and the Pressure (Expansion) Relief Valve (if fitted) must be connected to a discharge pipe.
- 4.2 A discharge pipe is supplied to connect the internally fitted Temperature and Pressure Relief Valve to the Tundish which is also supplied. The pipe should be fitted through the hole in the outercase and held in place with the two part grommet supplied (see Figure 8 below).
- 4.3 From the tundish to the point of discharge the pipe should be 22mm o/dia minimum and have a resistance to flow equivalent to no more than 9 metres of straight pipe. Longer discharge pipe runs should have an increased internal diameter.
- 4.4 The discharge pipe must fall continuously in a downward direction from the valve outlets and be unobstructed, and in a frost-free environment.
- 4.5 The pipe material should be capable of conveying water/steam at 100°C.
- 4.6 The final discharge point should be in a safe, visible position.



5.0 COMMISSIONING

- 5.1 Do not switch on the electrical supply until the unit has been filled with water and checked for leaks.
- 5.2 Check that all installation, electrical and discharge pipe requirements have been met.
- 5.3 Check that all water and electrical connections are tight.
- 5.4 Open a hot water tap, turn on mains water supply to the heater.
- 5.5 Allow unit to fill and leave hot tap running for a short while to purge any air and flush out the pipework. Close the hot tap and check the system for leaks.
- 5.6 Manually test the operation of the Temperature and Pressure Relief Valve and, if fitted, the Pressure (Expansion) Relief Valve. Ensure water flows freely from the valve(s) and through the discharge pipes.
- 5.7 Switch on the electrical supply. The indicator light will illuminate during heating. When the set temperature is reached the indicator light will go out.
- 5.8 The set temperature can be adjusted by rotating the adjuster located on the Combined Thermostat and Thermal Cut-out, anti-clockwise to increase the temperature. Access to adjust the temperature is gained by removing the terminal cover.
- 5.9 Water may drip from the discharge pipe of the pressure-relief device this pipe must be left open to atmosphere.

6.0 REMOVAL AND FITTING TERMINAL COVER

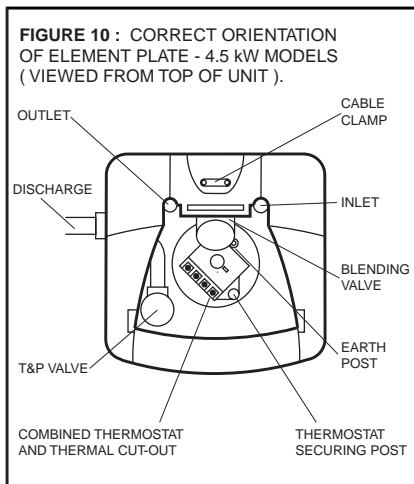
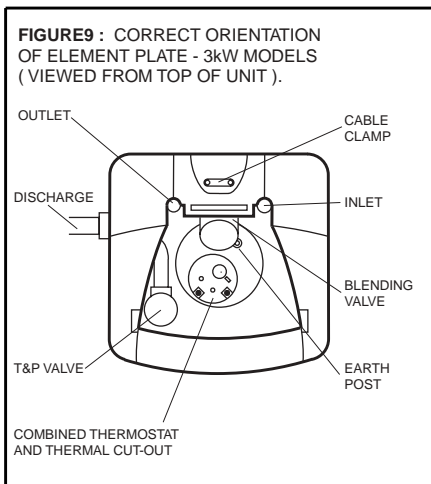
To remove the terminal cover use a large flat bladed screwdriver to relieve the snaps located towards the front, at either side of the cover. Gripping the cover at the front, pull upwards.

- 6.2** To fit the cover, locate the hinge at the back. Slide the snaps into place. Apply pressure to the front of the cover pushing back and down until it snaps securely in place

7.0 MAINTENANCE - DESCALING

Little maintenance is required, however in hard water areas the unit will require periodic descaling to ensure efficient operation. To descale the unit:

- 7.1** Switch off, and disconnect, the electrical supply. Turn off the water supply to the unit.
- 7.2** Open a hot tap to relieve any system pressure. Disconnect the plumbing connections to the unit and remove (note full weights of units). Empty unit through the outlet connection.
- 7.3** Remove the terminal cover as described in Section 6.
- 7.4** Disconnect the electrical terminations to the thermostat. Disconnect earth links to the earthing stud.
- 7.5** Remove the element plate assembly by unscrewing the five securing screws. (Tapped jacking points are provided). Remove any loose scale from the container. Carefully clean off any scale from the element and thermostat pocket. DO NOT clean scale from interior container walls.
- 7.6** Re-fit the element plate assembly using a new sealing gasket. Note the correct orientation of the element plate by reference to Figures 9 and 10 below. Rewire the unit with reference to the Wiring Diagrams Figures 6 and 7.
- 7.7** Re-commission the unit following the INSTALLATION and COMMISSIONING instructions.



8.0 MAINTENANCE - SAFETY VALVES

The Temperature and Pressure Relief Valve and, if fitted, the Pressure (Expansion) Relief Valve should be regularly checked. This is to remove limescale deposits and to verify that is not blocked. Manually operate the valves by either twisting the cap or lifting the lever. Ensure water flows freely from the valve(s) and through the discharge pipes. Ensure the valve(s) reseal correctly when released.

9.0 MAINTENANCE - EXPANSION VESSEL PRECHARGE PRESSURE

The Expansion Vessel, if fitted, should have a precharge pressure of 4.1 bar (60 p.s.i.). This can reduce over time and eventually require re-charging. To do this:

- 9.1 Turn off water supply to the unit; open a hot tap to relieve system pressure.
- 9.2 Remove dust cap from valve at top of Expansion Vessel
- 9.3 Check pre-charge pressure using a tyre pressure gauge. If the pressure is lower than 4.1 bar (60 p.s.i.) it should be recharged using a tyre pump (Schraeder Valve type). **DO NOT OVER CHARGE.**
- 9.4 Re-check pressure and when correct replace dust cap.
- 9.5 Turn on mains water supply and close hot tap.

10.0 SPARE PARTS

The following comprehensive list of spare parts is available for your Santon water heater. Please refer to the Rating Label on the side of your heater before ordering to ensure the correct spare part is obtained.

DO NOT REPLACE WITH PARTS NOT RECOMMENDED BY SANTON - THIS WILL INVALIDATE YOUR GUARANTEE AND MAY RENDER THE INSTALLATION DANGEROUS.

DESCRIPTION	CODE NO.
Element plate assembly - 7 litre 3kW	95 606 942
Element plate assembly - 10 litre 3kW	95 606 921
Element plate assembly - 15 litre 3kW	95 606 944
Element plate assembly - 15 litre 4.5kW	95 606 945
Combined thermostat/thermal cut-out 3kW	95 612 687
Combined thermostat/thermal cut-out 4.5kW	95 612 634
Indicator light 3kW	95 607 992
Indicator light 4.5kW	95 607 993
Element plate gasket	95 611 708
Pressure (Expansion) Relief Valve	95 607 986
Temperature/Pressure Relief Valve	95 605 876
Thermostatic Blending Valve.....	95 605 875
Top cover moulding (7&10 litre)	95 614 272
Top cover moulding (15 litre)	95 614 276
Terminal cover (7&10 litre)	95 614 274
Terminal cover (15 litre)	95 614 275

11.0 FAULT FINDING

Disconnect the electrical supply before removing the terminal cover. It is recommended that any service operations on this Santon heater are carried out by a competent person.

FAULT	POSSIBLE CAUSES	ACTION
Water not heating	1. Electrical supply fault	1. Check electrical supply
	2. Thermal cut-out tripped	2. Check cut-out, if operated reset and check thermostat operation. If necessary replace thermostat/thermal cut-out (see Wiring Diagram)
	3. Thermostat fault	3. Check thermostat operation, replace if necessary
Discharge of water from Pressure Relief Valve (continuously)	Excessive mains water pressure	Fit Pressure Reducing Valve Pack ALK01 (94970008) see IMPORTANT INSTALLATION POINTS
Discharge of water from Pressure Relief Valve (intermittently)	1. Expansion in mains not possible.	1. Fit pack ALK02 (94970009) see IMPORTANT INSTALLATION POINTS
	2. Mains pressure exceeds 4.1 bar (60 p.s.i.)	2. Fit pack ALK01 (94970008) see IMPORTANT INSTALLATION POINTS
	3. Pressure Relief Valve Fault	3. Replace Pressure Relief Valve.
	4. Loss of pressure from Expansion Vessel	4. Check and if necessary, re-charge Expansion Vessel pre-charge pressure (see Section 9.0)
Discharge of water from Temperature/Pressure Relief Valve and or water/steam from Pressure Relief Valve	Thermostat and thermal cut-out fault	Replace thermostat and thermal cut-out
No water flow	1. Inlet valves incorrectly fitted	1. Check all valves are correctly installed in accordance with flow direction arrows
	2. Mains water supply not turned on	2. Check mains water supply is on
	3. Blockage in mains water supply	3. Check for obstructions. Check strainer in Thermostatic Blending valve and pack ALK01 (94970008) if fitted.
"Milky" water	Oxygenated water	Water from a pressurised system releases oxygen bubbles when flowing. The milkiness will disappear after a short time.

NOTE: Use only Santon approved spare parts. Replacement of any parts with components not recommended by Santon will invalidate the guarantee and may render the installation dangerous.

12.0 ACCESSORIES

The heater can be used to supply several hot water outlets via conventional taps. It is not recommended for supplying a shower. Individual site demands should be considered when choosing capacity and the number of outlets to be served.

13.0 USER INSTRUCTIONS

13.1 This Santon unvented water heater stores water at the temperature set on the adjustable thermostat in the range of 6 to 66° C. The heater is fitted with a TMV2 Thermostatic Blending Valve which controls the temperature of water to the hot tap(s). The Thermostatic Blending Valve allows water in the heater to be stored at a higher temperature and then blended with cold water to deliver at a pre-set outlet temperature.

Where possible, the temperature setting of the thermostat should be at least 15° C higher than the setting of the Thermostatic Blending Valve.

To avoid any risk of freezing when the heater is not in use for long periods during the winter months, ensure the electrical supply, is not switched off, and set the thermostat to its minimum position. N.B. This will not protect other system pipework.

13.2 The indicator light will be illuminated when the unit is heating.

13.3 To ensure the heater continues to operate at its optimum performance it should be periodically maintained in accordance with the instructions given under the Sections headed MAINTENANCE.

13.3 IMPORTANT NOTES TO USER

Do not block or restrict the discharge from any safety valve fitted.

Do not tamper with any safety valve fitted.

If water discharges from any safety valve fitted, switch off the electrical supply to the unit immediately. Contact a qualified installer. Do not turn the electrical supply on again until the unit has been checked and approved by a qualified installer.

Guarantee

This product is guaranteed against faulty materials and manufacture for a period of 2 years from the date of purchase provided that:

1. The unit has been installed in accordance with the Installation and User Instructions and all relevant Codes of Practice and Regulations in force at the time of Installation, and that all necessary controls and safety valves have been fitted correctly.
2. Any valves and controls are of the Santon recommended type and specification.
3. The unit has not been modified or tampered with in any way, and has been regularly maintained as detailed in the Installation and User Instructions.
4. The unit has been used only for heating potable water.

The unit is not guaranteed against damage by frost, and the immersion heater is not guaranteed against excessive scale build-up.

This Guarantee in no way affects the statutory rights of the consumer.

The policy of Santon is one of continuous product development and, as such, we reserve the right to change specifications without notice.

Environmental Information

Santon 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 CFC-free polyurethane foam.



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