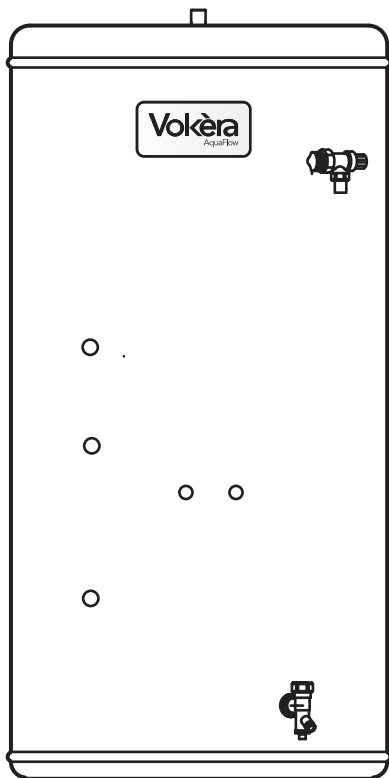


AquaFlow

Single coil water cylinder



Installation & Servicing Instructions



**THESE INSTRUCTIONS
TO BE RETAINED
BY USER**



Vokèra is a licensed member of the Benchmark scheme which aims to improve the standards of installation and commissioning of domestic hot water systems in the UK.

Aquaflow

Single coil water cylinder

00142046-00

INSTALLATION MANUAL

This manual gives detailed advice for installation and should be read carefully prior to fitting any unvented unit. This Vokera Aquaflow cylinder must be installed by a competent person and be installed in compliance with the Vokera Aquaflow Installation and Maintenance Instructions, all current legislation, codes of practice and regulations governing the installation of unvented hot water cylinders in force at the date of installation.

Components supplied with the unit for site fitting

(See also page 2 for component list)

- * Multibloc valve, includes pressure reducing valve, line strainer, balanced cold water take off, **(for shower or bidet only)** check and expansion valve.
- * Tundish.
- * 1/2" F x 15 x 15 tee piece.
- * Flexible hose.
- * 3/4" x 22 mm Elbow / Drain Cock
- * Commissioning valve, 1/2" BSP male.
- Motorized valve.
- **Expansion vessel**

Components factory fitted

- * Immersion heater(s).
- * Thermostats / thermal cut-out.
- * Temperature and pressure relief valve.

Health and Safety

Manual Handling Operations Regulations 1992 defines manual handling as: "any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or bodily force" The Regulations set no specific requirements such as weight limits. However common sense still has to be used based on an ergonomic approach for each individual

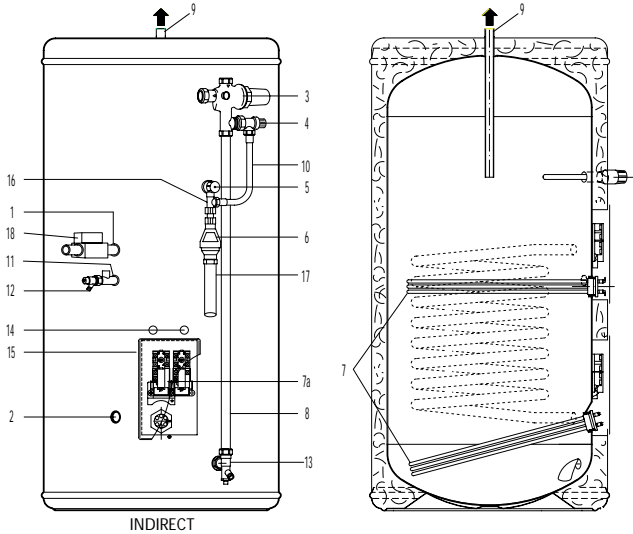
DIMENSION AND WEIGHTS TABLE 1

PRODUCT REF.	120	150	200	250
HEIGHT	720	900	1150	1600
DIAMETER	580	580	580	580
WEIGHT EMPTY	34	40	48	64
MAX WEIGHT FULL	132	163	215	303

Installation details

The Vokera unvented unit is designed for use with supply pressure up to 16 bar. For pressures over 16 bar an additional pressure reducing valve must be fitted in the supply pipe to the unit. Wall mounting brackets are available for Vokera Aquaflow unvented units 120-200 litres capacity.

General Layout Fig: 1



KEY

Part No

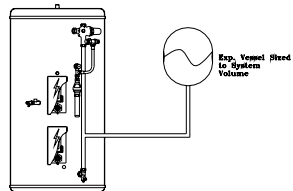
KEY

Part No

1	Flow BSPF *		10	Flexible Hose	202108
2	Return BSPF *		11	Secondary Return ½"BSPF Fit ½" Fx½"Mx15mm Tee piece (Not supplied)	
3	Pressure Reducing Valve Includes Item 4	510503	12	Commissioning Valve / Fitting (½" MI Drain Cock)	250440
4	Check and Expansion Valve	510505	13	Elbow / Drain Cock	250445
5	Temperature and Pressure Relief Valve	550803	14	Cable Entry	
6	Tundish	219002	15	Electrical Box	
7	Immersion Heater	71255	16	Tee Piece	250006
7A	Thermostat Immersion Heater Thermostat Cylinder	80400 80511	17	Discharge Pipe (Not supplied)	
8	Cold Feed Tube (Not Supplied See Table 2)		18	Motorised Valve Not Factory Fitted)	92000
9	Hot Water Outlet 22mm				

TABLE 2

Series	Length of tube (ø22) mm
120	480 mm
150	585 mm
200	760 mm



COLD WATER SUPPLY

1. To obtain the best performance from your Aquaflow unvented system it is advisable to feed the unit with an uninterrupted supply.
2. Locate the water heater in a suitable position to facilitate the installation of the cold water supply, discharge fittings and pipework. Also take into account access to the immersion heaters and the commissioning valve.
3. Fit the combined male elbow / drain cock to cold supply point (13), so that the compression fitting is vertical.
4. Fit the commissioning valve (12) to the commissioning fitting .
5. Fit the female outlet of the tee piece to the temperature and pressure relief valve (5) with the horizontal connection facing right at approx. 45°.
6. Fit the tundish (6) to the tee piece using a short length of 15 mm copper tube.
7. Fit the length of copper tube 22mm specified in Table 2 to the cold feed elbow (see 3 above).
8. Fit the pressure reducing valve (3) to the top of the copper tube (see 7 above), so that the black knob is facing right.
9. Connect the flexible hose to the 1/2" outlet of the expansion valve (4) and the horizontal outlet of the tee piece (see 5 above). Discard compression nut & ring.
10. If a balanced mains pressure cold water supply is required to a **shower or bidet (over rim type only, ascending spray type requires type AA,AB or AD air gap)**, remove the blanking cap from the pressure reducing valve (3) and connect to the shower or bidet cold supply. *(Major shower manufacturers advise fitting a mini expansion vessel in the balanced cold supply pipework to accomodate thermal expansion and prevent tightening of shower controls) Using the balanced cold connection to feed bath taps can reduce the flow available to the unvented cylinder.*
11. Before connecting the cold supply, flush the cold supply pipework of all flux and debris.
12. Connect the cold supply to the pressure reduction valve (Multibloc) (3).

Hot water supply

13. Connect the hot water supply pipe to the outlet (9). Ensure connection is water tight.

Secondary return

14. A secondary return facility is provided on all units. Fit a 1/2" F x 1/2" M x 15mm tee piece between the commissioning valve (12) and the commissioning fitting. See also figure 4 on page 16.

Discharge pipe

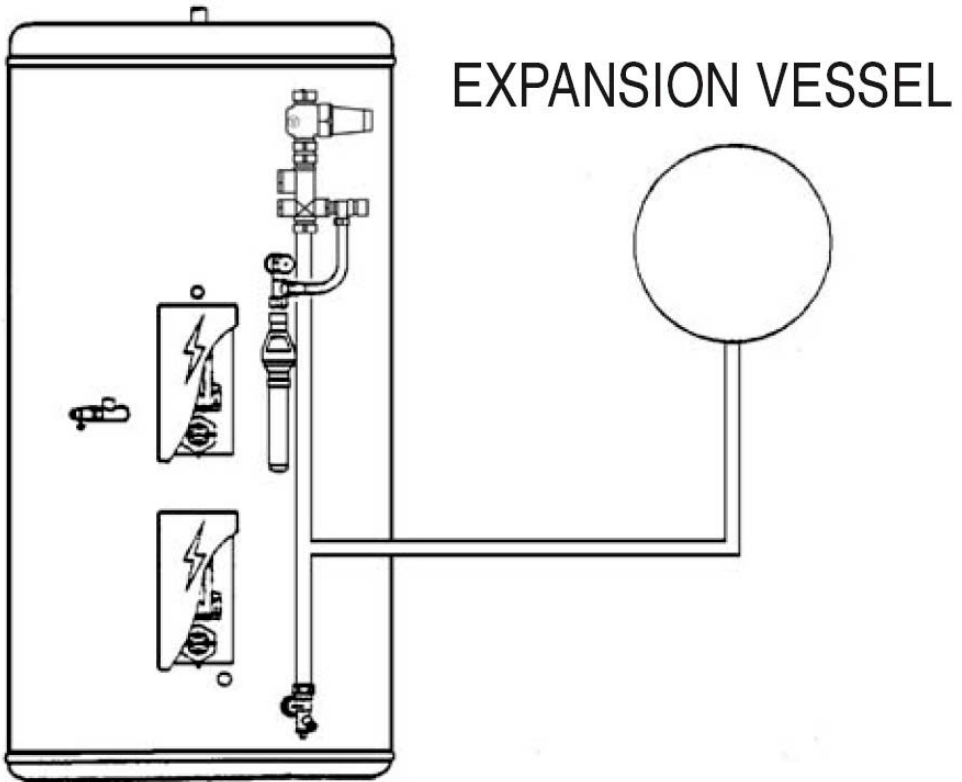
15. Connect the discharge pipe from the tundish (6) This must have a continuous fall and be fitted in accordance with The Building Regulations (see pages 5 and 12).

Primary flow & return and motorised valve

16. The boiler primary flow and return connections should be made to the unit. The motorised valve must be fitted into the primary flow. The primary flow and return fittings are 3/4" BSP female.
17. For electrical connection of the motorised valve and immersion heater, please read Electrical Installation Instructions. (Pages 7 – 11)

Expansion Vessel

18. Connect the expansion vessel (supplied) to the cylinder as shown in the diagram below. The vessel should be charged/pressurised to the same pressure as the PRV (Pressure Reducing Valve).



COMMISSIONING

Filling up

1. Close all hot water taps.
2. Open the commissioning valve (12).
3. Open the cold water supply valve.
4. When water flows from the commissioning valve (12), close the valve.
5. Allow system to stabilize for five minutes.
6. Open each hot water tap in turn to expel air from the system pipe work.
7. Check for leaks.
8. Manually operate Temperature and Pressure Relief Valve (5) to ensure free water flow through discharge pipe. (Turn knob to left.)

Draining

Switch off the electrical power off (Important to avoid damage to element). Isolate boiler from Aquaflow unit. Turn off the cold water supply valve. Open hot water tap. Open drain (13). The unit will drain.

SAFETY AND MAINTAINANCE

Safety Cut-out

1. The safety cut-out operates if:
 - a. Wiring is incorrect.
 - b. The immersion heater thermostat or cylinder thermostat fails.
 - c. Thermostat is set too high.
2. Remember before resetting the safety cut-out or altering the thermostat setting, isolate electrical supply to the unit prior to removal of the electrical box lid.
3. Reduce thermostat setting and press the reset button. After adjustments are completed, ensure the lid to the electrical box is replaced correctly and the retaining screw is fitted.
4. If still out of operation, contact installer.

Cold or tepid water discharge from tundish

1. Turn off the electrical supply to the immersion heaters.
2. Turn off cold water supply valve.
3. Open a hot tap.
4. Drain water from commissioning valve (12) until water flow stops.
5. Turn the knob on the Temperature and Pressure Relief Valve (5) to the left and hold in this position until water flow stops from the commissioning valve.
6. Close commissioning valve.
7. Close all hot taps.
8. Open cold water supply valve.
9. Turn on electrical supply to the immersion heaters.

Hot water discharge from tundish

This indicates a malfunction of a thermal cut-out, operating thermostat or the combined temperature and pressure relief valve. Turn off the electrical supply to the immersion heater and also isolate an indirect unit from the boiler. Contact the installer or competent engineer.

INSTALLATION AND SERVICING INSTRUCTIONS

Cold water inlet control (Multibloc) See Page 2 Items 3 - 4

This combination consists of a pressure reducing valve with integral strainer, check valve and expansion valve with stainless steel seat. The pressure settings are set and locked in the factory and are shown on the top of each valve. For optimum performance the following installation instructions should be complied with.

Installation

1. Cold water supply to be 22 mm nominal size.
2. Flush supply pipework before connection to remove all flux and debris prior to fitting the inlet controls. Failure to do this may result in irreparable damage to the controls and will invalidate the warranty.
3. The "MULTIBLOC" can be fitted in any orientation to suit the installation as long as it is fitted in the correct flow direction. Check the flow arrows on the side of the body.
4. The expansion valve should be either horizontal or upright - if fitted inverted, debris may be deposited on the seat and cause fouling of the seat when the valve operates. Check direction of flow arrows.
5. The black plastic plugs in the body are pressure gauge connections to enable pressure monitoring to be carried out, should the system develop a fault. It is recommended that these be accessible (the pressure reducing valve has two - only one need be accessible).
6. Expansion relief drain pipework must be connected to a safe visible discharge point via a tundish and the pipework must have a continuous fall.
7. The pressure reducing valve has two outlets, the second one is for a balanced cold water supply, to a shower or a bidet (**over rim type only, ascending spray type requires type AA,AB or AD air gap**) (*Major shower manufacturers advise fitting a mini expansion vessel in the balanced cold supply pipework to accommodate thermal expansion and prevent tightening of shower controls*) **Using the balanced cold connection to feed bath taps can reduce the flow available to the unvented cylinder.** The balanced cold supply is blanked off.

NOTE: If the unit has been commissioned and is to be unused for more than 8 weeks it is advisable to turn off the cold supply and draw off approximately 5 litre of water through a hot tap. **NB** The cold supply must be opened prior to use.

The Benchmark Log Book enclosed with the cylinder should be completed after commissioning the system and handed to the customer for future reference.

MAINTENANCE

Under normal circumstances the "MULTIBLOC" combination control valve should not require any maintenance. However, annual inspection and / or cleaning of the integral line strainer, pressure reducing valve, cartridge, expansion relief valve cartridge and seating may be necessary depending on local water conditions.

Pressure reducing valve

1. Isolate cold water supply.
2. Unscrew the retaining nut of the valve.
The complete operating mechanism, including the strainer can be removed.
3. Clean the filter mesh and the cartridge under running water.
4. Replace cartridge ensuring that strainer is correctly located and reassemble the unit.

Pressure Reducing Valve cartridge and strainer Part No. 510 501 2.1 Bar.

Expansion relief *Spare Parts*

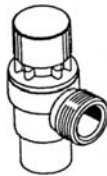
1. Isolate cold water supply.
2. Unscrew blue expansion relief headwork from valve body.

3. Clean valve seat face and seating - do not scratch or damage either seal face or seating.
4. Refit in reverse order. Do not overtighten.
Expansion valve cartridge and seat Part No. 214009 8.0 Bar. Complete Expansion Valve Part No. 510 505 8.0 Bar.

Pressure reducing valve
Cartridge and strainer
Part No. 510 501
2.1Bar



Expansion valve
(Cartridge)
Part No.
8.0 Bar 214009
6.0 Bar 214005
4.0 Bar 214046



Expansion valve
Part No. 510 505
8.0Bar

Tundish

Install the Tundish in a vertical position within a maximum of 500 mm from the Temperature and Pressure Relief Valve drain connection. Ensure the expansion relief pipework discharges through the tundish. Tundish pipework must be 22 mm with a minimum vertical length of 300 mm below tundish. Maximum permitted length of 22 mm pipework is 9 m. Each bend or elbow is equivalent to 0.8 m of pipework.

All pipework must have continuous fall and discharge in a safe, visible position. If any doubt, refer to *Building Regulation G3*.

ELECTRICAL INSTALLATION

Immersion heaters

All units are fitted with one immersion heater which is located behind the electrical box.

Indirect Units

Motorised valve

To comply with regulations governing the installation of indirect unvented cylinders, a motorised valve must be fitted in the primary flow. Your Aquaflo unit has been supplied with a two port motorised valve, which will act as a positive energy cut-out should the safety cut-out operate. The motorised valve will also control the temperature of the domestic stored water via the cylinder thermostat, which is located in the electrical box. The unit should be installed on an "S" or "Y" plan

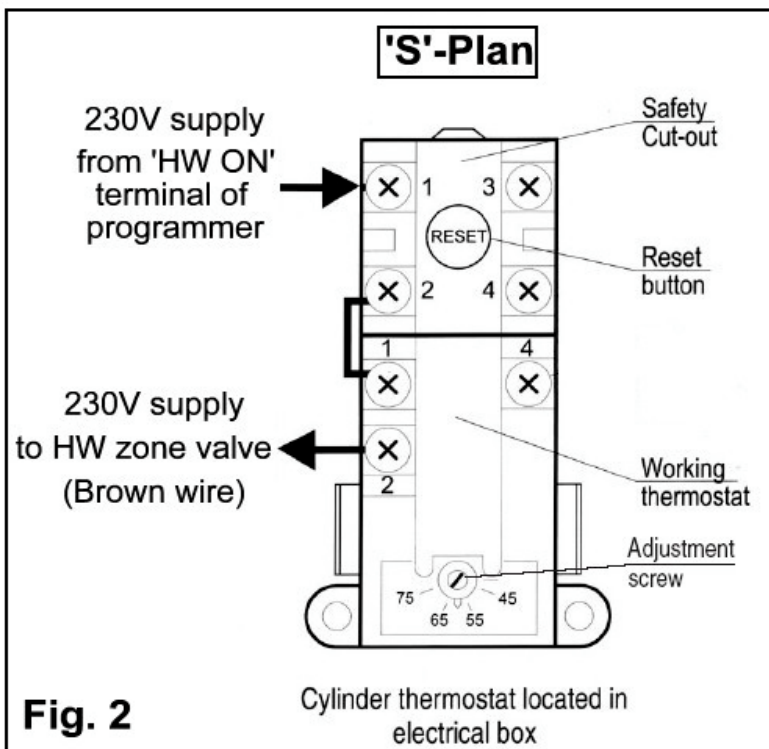
system. **Please follow the instructions carefully.** All electrical connections must conform to current IEE wiring regulations. The working thermostat which controls the temperature of the domestic hot water (see fig. 2/2A) is adjustable between 45°C - 75°C. A safety cut out is also incorporated within the thermostat and will operate at 85°C ± 3°C. Should the safety cut out be brought into operation, the motorised valve will operate and close down the primary flow to the cylinder. To reset the safety cut-out and the motorised valve the reset button must be pressed in (see fig. 2/2A). If using a 6-wire 28mm or 1" BSP V4043H on either circuit the white wire is not needed and must be made electrically safe.

Vokera can not be responsible if alternative wiring plans are used.

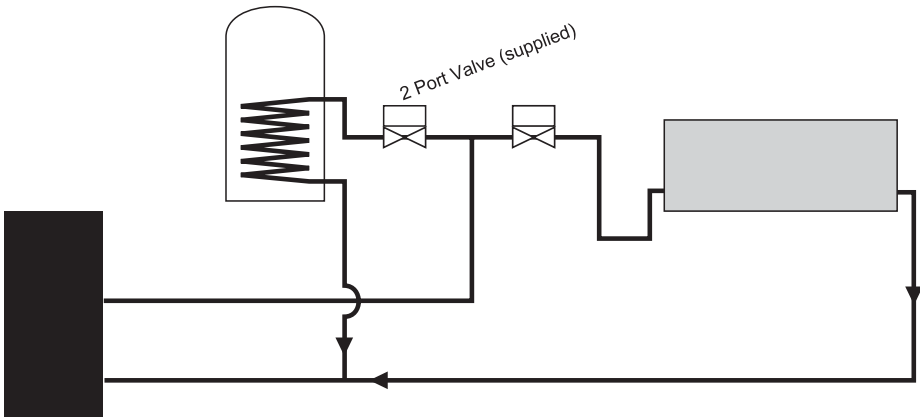
Important: Before resetting the safety cut-out or altering the thermostat setting isolate electrical supply to the unit before removal of the lid.

'S' Plan systems

Refer to the wiring diagrams contained within the boiler installation instructions for the wiring of 'S'-Plan systems. Connect the cylinder thermostat as shown in the diagram below



S Plan System Schematic

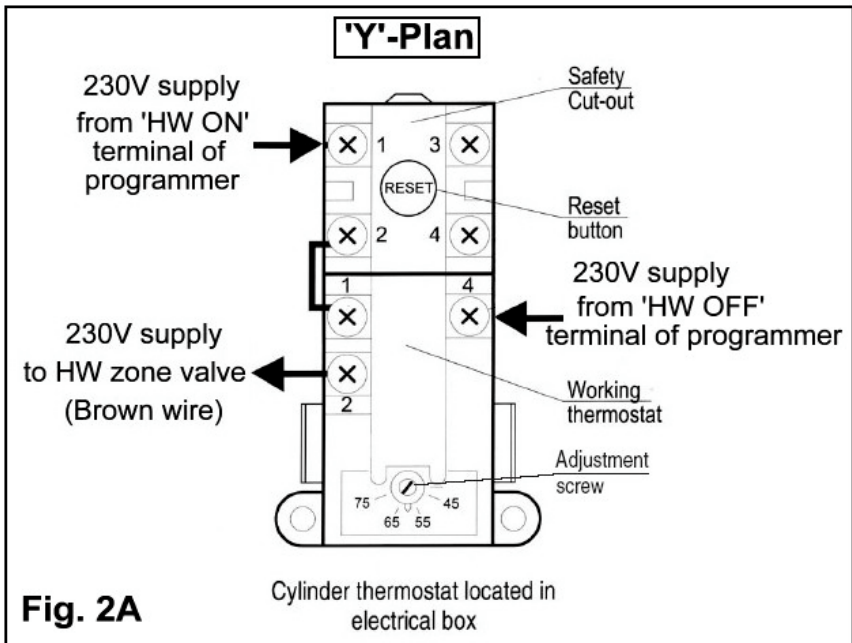


Y Plan Wiring Layout

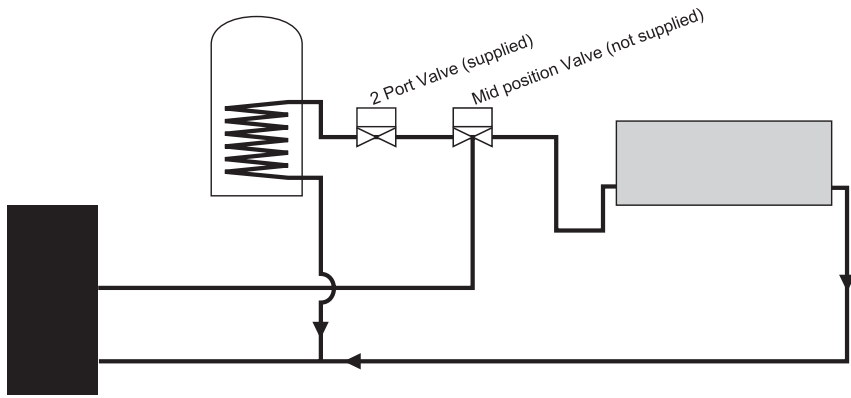
Refer to the wiring diagrams contained within the boiler installation instructions for the wiring of 'Y'-Plan systems. Connect the cylinder thermostat as shown in the diagram below.

NOTE

A 10 way junction box must be used on the Y plan system.



Y Plan System Schematic



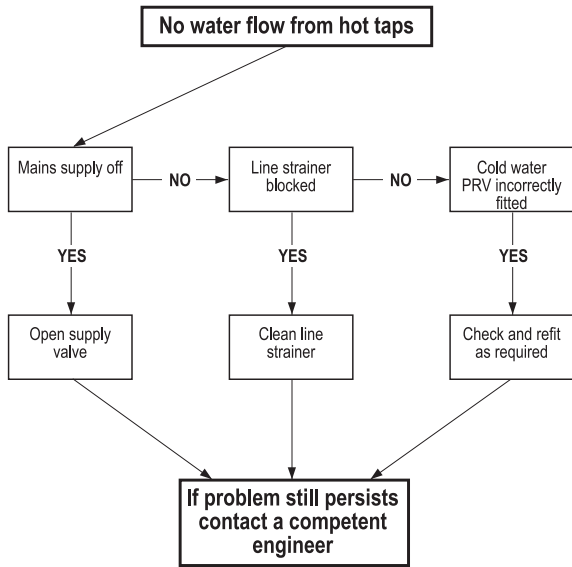
AQUAFLOW FAULT FINDING GUIDE

FAULT	POSSIBLE CAUSE	REMEDY
No water flow from hot taps	1. Mains supply off.	1. Check and open stopcock.

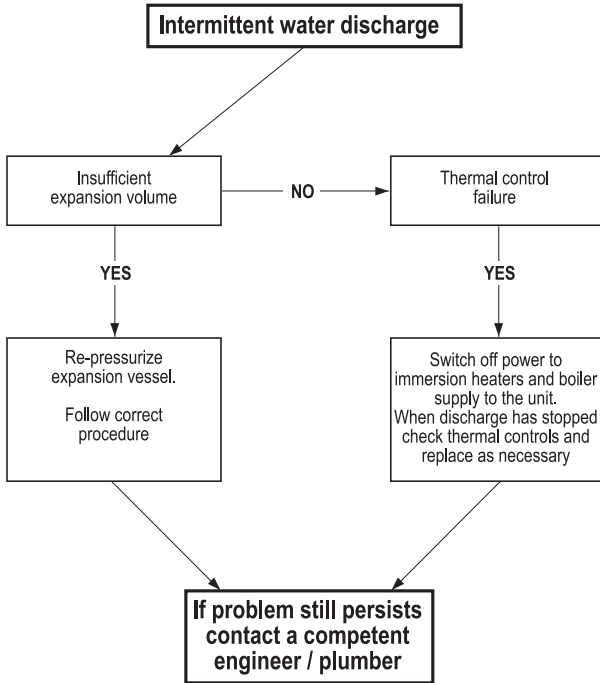
	<ol style="list-style-type: none"> 2. Strainer blocked. 3. Cold water inlet Pressure Reducing Valve incorrectly fitted. 	<ol style="list-style-type: none"> 2. Turn off water supply. Remove strainer and clean. (See Pressure Reducing Valve page 6 Installation Manual) 3. Check and refit as required.(see item 3 page 5 of installation manual)
Water from hot taps is cold.	<ol style="list-style-type: none"> 1. Immersion heaters not switched on. 2. Immersion heater thermal cut-out has operated. 3. Programmer set to central heating or not switched on. 4. Boiler not working. 5. Cylinder thermal cut-out has operated. 6. Motorised valve not operating correctly. 	<ol style="list-style-type: none"> 1. Check and switch on. 2. Check and reset button. (See thermostat diagram page 9 and safety cut-out on page 4 of Installation manual). 3. Check and set to hot water. 4. Check boiler operation. If fault suspected consult installer or boiler manufacturer. 5. As at No. 2. 6. Check wiring and / or plumbing connections to motorized valve. (See pages 8 or 10 of the installation manual).
Intermittent water discharge.	<ol style="list-style-type: none"> 1. Reduced expansion capacity. 2. Thermal control failure. (Note Water will be hot). 	<ol style="list-style-type: none"> 1. Recharge expansion vessel to correct charge (same as pressure reducing valve). 2. Switch off power to immersion heater(s) and boiler supply to the unit. When discharge has stopped, check thermal controls, replace if faulty. Contact a competent person.
Continuous water discharge.	<ol style="list-style-type: none"> 1. Cold water inlet Pressure Reducing Valve not working. 2. Temperature and pressure relief valve faulty. 3. Expansion relief valve not working correctly. 	<ol style="list-style-type: none"> 1. Check pressure from valve if greater than 2.1 bar replace. (See page 6 of installation manual) 2. As No. 2 of above. 3. Check and replace if faulty. (See page 6 of installation manual).

NOTE: Disconnect electrical supply before removing any electrical equipment covers.

AQUAFLOW FAULT FINDING GUIDE

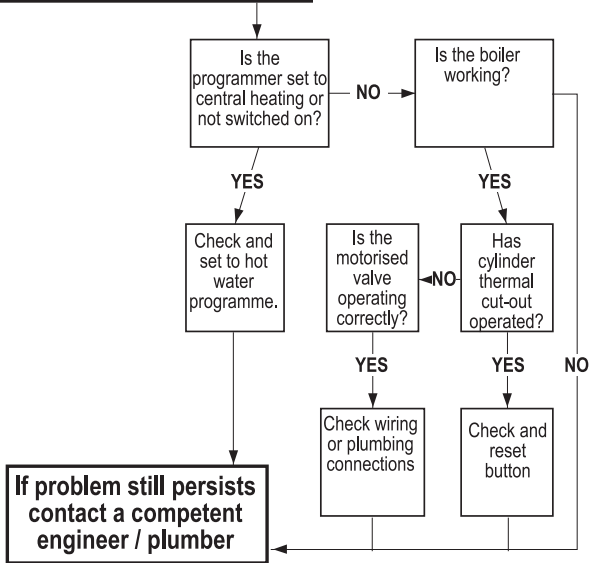


AQUAFLOW FAULT FINDING GUIDE

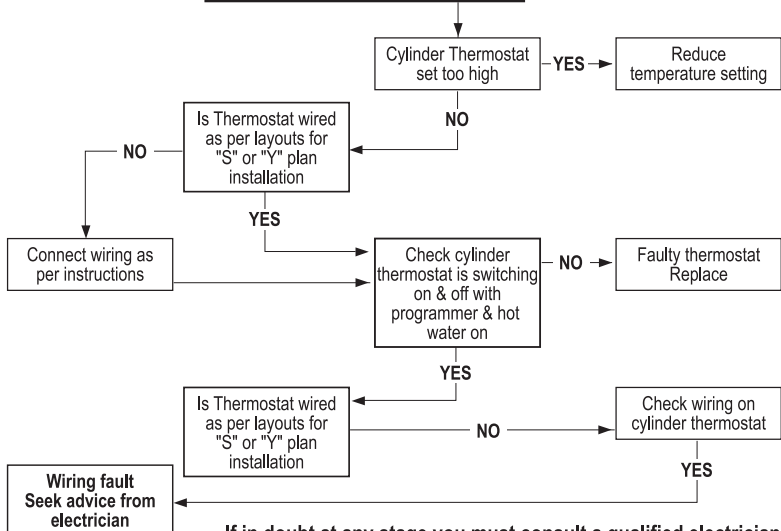


AQUAFLOW FAULT FINDING GUIDE

Hot water from taps is cold



Excessive hot water from taps



If in doubt at any stage you must consult a qualified electrician

Notes:

ALTERNATIVE DISCHARGE

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.

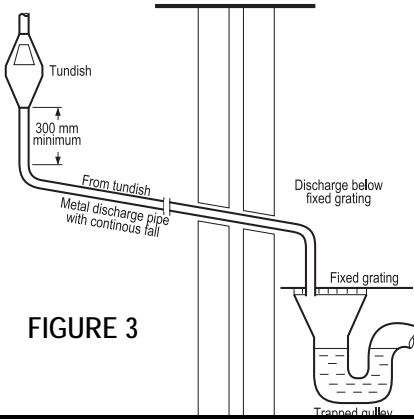


FIGURE 3

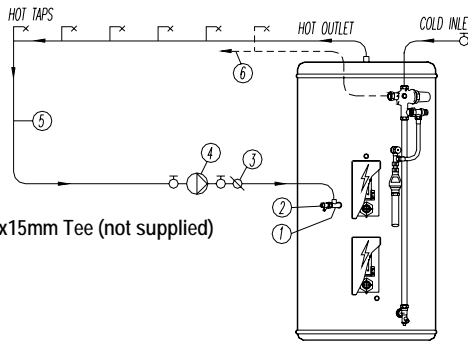
Discharge at high level, i.e. into a metal hopper and metal down pipe with the end of the discharge pipe clearly visible (tundish visible or not) or onto a roof capable of withstanding high temperature

discharges of water and 3 m from any plastics guttering system that would collect such discharges (tundish visible).

Where a single pipe serves a number of discharges, such as in blocks of flats, the number served should be limited to not more than 6 systems so that any installation discharging can be traced reasonably easily. The single common discharge pipe should be at least one pipe size larger than the largest individual discharge pipe to be connected. For further information contact your Building Control Office or The British Board of Agrément.

SECONDARY RETURN

FIGURE 4



- 1 Secondary Return use 1/2" Fx 1/2" Mx 15mm Tee (not supplied)
- 2 Commissioning Valve
- 3 Non Return Valve
- 4 Circulation Pump
- 5 Secondary Return Line
- 6 Balanced cold supply for showers or bidet only.

All replacement parts must be supplied by Vokera.
To obtain the address of a local stockist contact:

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Boundary Way
Hernel Hempstead
Herts HP2 7RP**

**Phone: (0870) 333 0220
Fax: (01442) 281 460**

www.vokera.co.uk.

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