



Installation Instructions / Operating & Maintenance Manual “ABLUTION PLANT” Model – BTHW-1



Model shown – BTHW-1

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FOREWORD

The Ablution Plant provides Fluid Category 5 backflow protection and a boosted hot water supply at a safe temperature. The operation is automatic. Dry running pump and heater protection is via a low level float switch in the cistern.

SUPPORTING LITERATURE

- BTHW “Ablution Plant” Datasheet
- TMV5213 Datasheet
- Wiring Diagram AM139*
- Torbeck Cistern Valve card
- Factory Commissioning Certificate

WARNING

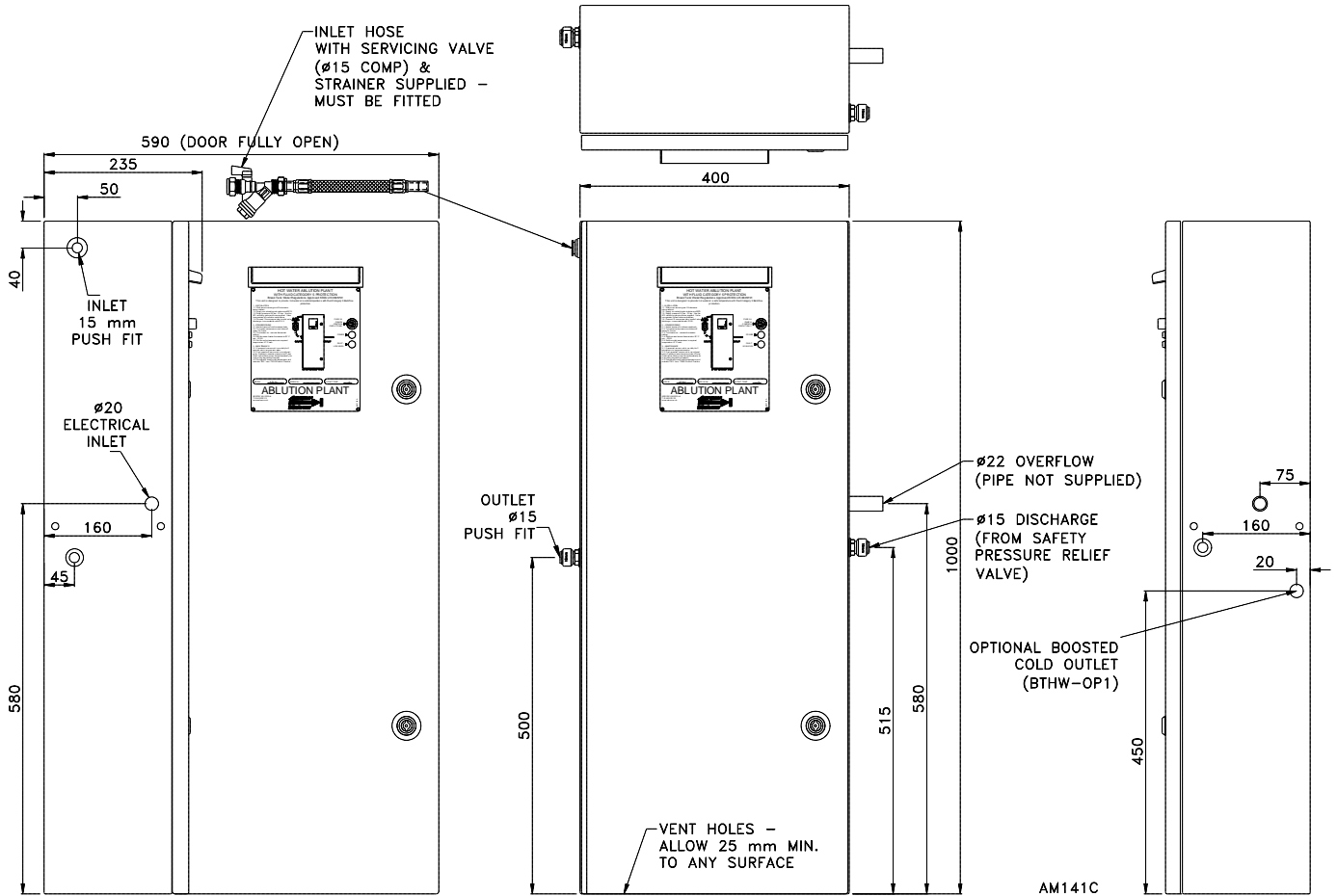


Disconnect electrical power before removing electrical cover guard for any servicing.

1.0 - INSTALLATION

- 1.1. Wall mount the unit using suitable fasteners ensuring a minimum of 25mm clearance below the cabinet. Under fault conditions, water could discharge from the drainage holes in the cabinet base. Do not mount above electrical equipment or where any discharge could cause damage.
- 1.2. Do not install in a potentially freezing location or above 25⁰ C.
- 1.3. The plant weighs 50kg dry and 60kg wet. Safe lifting practises should be used.
- 1.4. Electrical supply must be via a double pole isolator and RCD. The cabinet features a 20mm entry for conduit. The unit requires a 230V 50 Hz supply fused at 13 A (or 16A MCB). The switch must have a double pole disconnection with a separation gap of at least 3mm. See ratings plate for electrical details.
- 1.5. Adequately support the supply pipe – normally 15mm copper tube. Rubber lined clamps are recommended to avoid float valve water hammer.
- 1.6. Thoroughly flush the cold water supply pipe before connecting. The water supply pressure must be 1.0 bar min. (dynamic) - 10 bar max.
- 1.7. The flexible hose and servicing valve – incorporating a strainer and flow limiter - provided must be installed.
- 1.8. The Servicing valve assembly incorporates an automatic flow limiter and strainer. Note - If the dynamic pressure is too low and the tank is running dry, remove flow limiter cartridge from servicing valve – see 4.0.
- 1.9. Connect the overflow (Warning Pipe). A short length of vertical pipe is provided. Ensure any discharge would be conspicuous and not cause any damage.
- 1.10. Connect outlet pipe, and optional cold boosted outlet if using option BTHW-OP1. See Drawing AM141C.
- 1.11. Connect 15mm copper tube to relief valve discharge - in accordance with G19.3.
- 1.12. The overflow should be in accordance with Water Regulations - G16.8, G16.10 & G16.11. It is recommended that the overflow is tested to determine if it can cope with an inlet device failure – push the float arm down. **WARNING!** If the overflow cannot cope, water will discharge via the weir slot in the door.
- 1.13. If the minimum outlet flow rate of 0.008 Lt/s (0.5 Lt/min) cannot be guaranteed fit an additional pressure vessel of at least 4 litres (pre-charge 1 bar).

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2.0 - COMMISSIONING

- 2.2. The unit is factory commissioned, but the outlet temperature must be checked and the TMV adjusted as required. *Note - it is not possible to alter the outlet pressure. The pump is self priming.*
- 2.3. Note the heater thermostat dial position. Switch heater off using the heater thermostat dial by turning fully anti-clockwise.
- 2.4. Turn water supply on. The Torbeck float valve should commencing filling and cease filling when the tank is full.
- 2.5. Open a tap connected to the outlet system.
- 2.6. Switch on the electrical power.
- 2.7. When a tap is opened - or trigger of abluion hose depressed - the pump should start automatically. Continue to draw off water until all air has been purged from the system. *If the pump does not start, isolate the electrical supply and investigate. Check the pump has not seized – see 5.1.*
- 2.8. Turn heater on - resume thermostat setting.
- 2.9. Once the heater is up to temperature its red neon will extinguish. Set the water heater thermostat to 62° C min - G18.2. To check, hold the probe of a digital thermometer against the hot metal outlet of the heater hose whilst water is being drawn off.
- 2.10. Set the outlet temperature to the required temperature, 41° C max. To adjust the temperature, prise off the plastic cover of the TMV, invert cover and use as an adjusting tool to rotate the hexagon spindle. A brass lock nut is provided for locking the desired temperature. The plastic cover should then be replaced.
- 2.11. The table below shows the recommended maximum temperatures for use

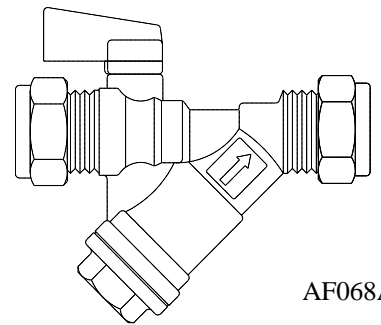
Bidet – max recommended temperature	38° C	NHS Estates Health Guidance Note
Shower - max recommended temperature	41° C	NHS Estates Health Guidance Note

3.0 - OPERATION

- 3.1. When electrically powered and all water draw offs closed, the pump should be at rest. When a tap is opened - or trigger of abluion hose depressed - the pump should start automatically. *There may be about 1 second delay before the pump starts.*
- 3.2. When all taps are closed, the pump should automatically stop within 3 seconds.
- 3.3. For applications with a continuous draw off less than 0.008 Lt/s (0.5 Lt/min) a pressure vessel of at least 4 Lt (pre-charge 1 bar) must be fitted to the system otherwise pump damage will occur due to the continuous stop/start cycling and this will invalidate the warranty.
- 3.4. The plant contains a small storage tank and a legionella risk assessment should be conducted. The greatest risk is associated with aerosol applications – e.g. shower heads. These should be operated periodically to purge stagnant water and replenish the internal tank and outlet pipe work. *Note – the Automatic Tank Purge Option (BTHW-OP2) can automatically purge the internal tank – but not the outlet pipe work.*
- 3.5. The unit must be run at least once every two weeks to exercise the pump by drawing off water from the boosted system. Ensure the pump runs for a few seconds. *Note - the plant features an anti-pump seize pulse timer which automatically runs the pump for 2 seconds every day – at no specific time. It is imperative that the unit remains constantly powered for this to function. This function can be tested by isolating the electrical power then switching back on. The pump should run for about 2 seconds – even if the tank is empty.*

4.0 - MAINTENANCE

- 4.1. Check the pump runs by drawing water off from tap or trigger. Check the filling rate can cope with the maximum demand. If low inlet flow is suspected – check and clean the inlet strainer in the servicing valve. See AF068A diagram -.
- 4.2. Close valve.
- 4.3. Unscrew hexagonal cap.
- 4.4. Remove strainer cartridge with long nose pliers.
- 4.5. Remove flow limiter from strainer (if fitted) by pushing out with small screwdriver.
- 4.6. Clean or replace basket and cartridge, with the same size and colour.
- 4.7. Insert flow rate cartridge into strainer - push to limit.
- 4.8. Insert strainer into valve – push to limit.
- 4.9. Replace hexagonal cap.
- 4.10. Turn valve on.
- 4.11. If the pre-charge air pressure in the 0.5 Lt vessel needs to be checked, we advise that an air pressure gauge should not be used as air will escape. Instead, the pressure should be checked with a pressure gauge on the outlet water pipe; where the sudden drop in pressure with a slow draw off (pump switched off) indicates the pre-charge pressure, which should be 1.0 ± 0.3 bar.



5.0 - FLOW LIMITING CARTRIDGE

If the BTHW-1 is using an aeration trigger it may be necessary to change the flow limiting cartridge to enhance the flow characteristics of the water from the trigger. Please note that this will affect the duration that warm water can be provided.

To change the flow limiting cartridge

- 5.1 Isolate the power and water supplies.
- 5.2 Drain the system as far as possible by holding the trigger open.
- 5.3 Separate the John Guest connector at the end of the braided hose inside the unit, on the right hand side of the unit just above the shelf
- 5.4 Use bent nose pliers to extract the flow limiting cartridge from the remaining connector, via the metal bar.
- 5.5 Insert new flow limiter (supplied) into connector with metal bar facing upward.
- 5.6 Reconnect the John Guest connector.
- 5.7 Reconnect power and water supplies.

6.0 - FAULT FINDING

- 6.1. See fault finding chart at : <http://www.arrowvalves.co.uk/pdf/btmidi2afaultfindingchart.pdf>
- 6.2. If pump has not been used for several weeks and is seized – **isolate power**, using a screwdriver, rotate the fan in the rear of the pump until free, restore power. Contact Arrow Valves for advice.

7.0 – OPTIONS

Option	Code
Ablution Hose & Trigger Chrome	CSHT-1
Ablution FC5 Cold Water Outlet Option	BTHW-OP1
Automatic Tank Purge System 24h	BTHW-OP2

Ablution Hose & Trigger Chrome - Ablution hose and trigger supplied.

Ablution FC5 Cold Water Outlet Option - An additional outlet that provides cold water only.

Automatic Tank Purge System /24h - Purges the tank every day for legionella control.