Arrow Valves Ltd

Tel 01442 823 123
Fax 01442 823 234

www.arrowvalves.co.uk

Operating & Maintenance Manual
"Midi-Break®"
Models – BTMIDI-1, BTMIDI-2A & BTMIDI-3A

Model shown – BTMIDI-3A

FOREWORD

The "Midi-Break®" provides Fluid Category 5 backflow protection and a boosted cold water supply. The operation is automatic. Dry running pump protection is via a low level float switch in the cistern.

The **A**dvanced models (BTMIDI-2**A** & BTMIDI-3**A**) have several advanced electrical features – see "Midi-Break®" Datasheet.

SUPPORTING LITERATURE

- BTMIDI "Midi-Break®" Datasheet
- Wiring Diagram AM125* (model BTMIDI-1), AM143* (models BTMIDI-2A & BTMIDI-3A)
- Torbeck Cistern Valve card (model (BTMIDI-1)
- Factory Commissioning Certificate

WARNING!

Disconnect electrical power before removing electrical cover, guard or any servicing

1.0 INSTALLATION

1.1. The Midi-Break® should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, building regulations, IEE Regulations, Water Supply (water fitting). Water Bye-Laws (Scotland) and other local Bye-laws.

1.2. Do not install in a potentially freezing location or above 25º C.

1.3. Wall mount the unit ensuring a minimum of 25 mm clearance below the cabinet. Secure using suitable fasteners or the optional wall bracket – *code MIDIBRA (see section 1.4 for instructions and datasheet for diagram).* Under fault conditions, water could discharge from the drainage holes in the cabinet base or from the weir slot in the door. Do not mount above electrical equipment or where any discharge could cause damage. *An optional Drip Tray is available - code BTDT3.*

1.4. Instructions for installing optional MIDIBRA wall bracket and BTCAB4 wall cover:

- 1.4.1. Offer bracket to wall as a template.
- 1.4.2. Mark centres of top of the two keyhole slots and mark centres of other two holes.
- 1.4.3. Remove bracket, drill and fit wall plugs to the four holes.
- 1.4.4. Fit bracket to BTMIDI cabinet with the supplied M6 flanged nuts.
- 1.4.5. Fit cabinet to wall with suitable fasteners.
- 1.4.6. Consider fitting screws to two lower holes in the cabinet.
- 1.4.7. Fit wall cover channel above cabinet.
- 1.4.8. Fit BTCAB4 wall cover.

1.5. Electrical supply must be via a double pole isolator and RCD. An isolator with a neon lamp is recommended for models BTMIDI-1 since there is no visual indication of power to the unit. The cabinet features a 20 mm entry for conduit. The unit requires a 230 V 50 Hz supply fused at 5 A (or 6 A MCB). The switch must have a double pole disconnection with a separation gap of at least 3 mm. See ratings plate for electrical details.

1.6. Adequately support the supply pipe – normally 15 mm copper tube. For BTMIDI-3A in particular, use 22 mm copper pipe if the pipe run is long (e.g. more than 5 m of 15 mm) or dynamic pressure is low. Rubber lined clamps are recommended to avoid float valve water hammer. The water supply pressure must be 1.0 bar min. (dynamic) - 10 bar max.

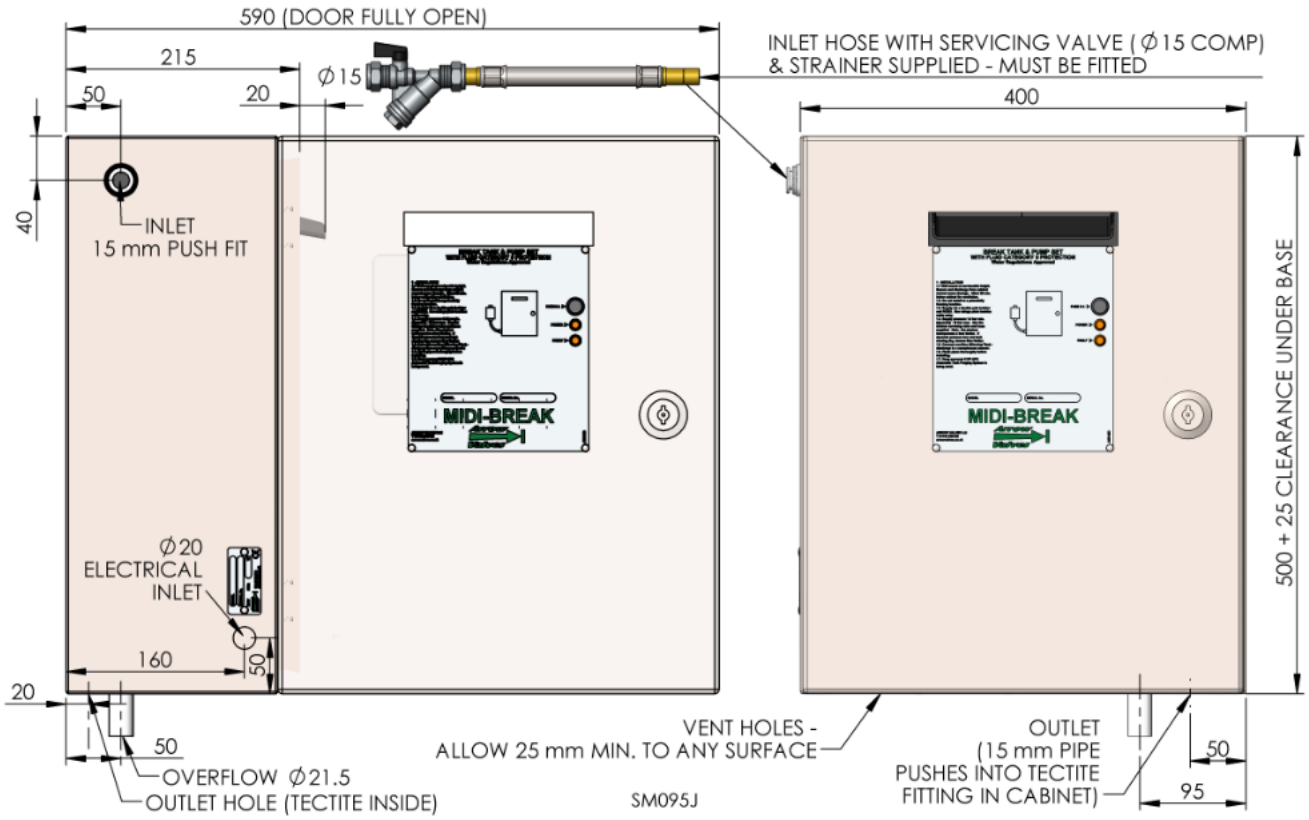
1.7. Thoroughly flush the cold water supply pipe before connecting.

1.8. The servicing valve assembly incorporates an automatic flow limiter and strainer. Note: if dynamic pressure is low and the tank is running dry, remove the flow limiter cartridge from the servicing valve and refit the strainer - 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. 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. Models BTMIDI-1 & BTMIDI 2A – push the float arm down. **Warning!** If the overflow cannot cope, water will discharge via the weir slot in the door.

1.11. If the minimum outlet flow rate of 0.04 Lt/s cannot be guaranteed fit an additional pressure vessel of at least 4 litres (pre-charge to 2 bar).



2.0 COMMISSIONING

2.2. The unit is factory commissioned and there are no adjustments required. *Note: it is not possible to alter the outlet pressure.* The pump is self-priming.

2.3. Turn water supply on. Models with a Torbeck float valve should commence filling and cease filling when the tank is full. *Models with a solenoid filling valve (BTMIDI-3A) will not fill until the electrical power is on.*

2.4. Open the tap connected to the outlet system.

2.5. Switch on the electrical power.

2.6. The pump should start and water will flow out the open tap. Continue to run the tap until all air has been purged from the system. *If the pump does not start, isolate the electrical supply and investigate. See online help at www.arrowvalves.co.uk.*

3.0. OPERATION

3.1. When electrically powered and all water draw off points are closed, the pump should be off. When a tap is opened 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 0.04 Lt/s (2.5 Lt/min) a pressure vessel of at least 4 Lt (pre-charge to 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 unit must be run at least once every two weeks to exercise the pump by opening a tap on the system. Ensure the pump runs for a few seconds. *Units fitted with the optional Automatic Tank Purge system (BTMIDI-2A-OP2 AND BTMIDI-3A-OP2) will automatically run for a few seconds every day.*

4.0 MAINTENANCE

4.1. Check the pump runs by drawing water off from a tap. 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 below.

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.

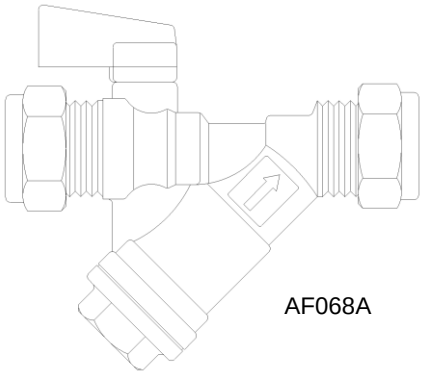
4.6. Clean or replace basket and cartridge, with the same size and colour.

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.



AF068A

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 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.

4.12. Check and clean if necessary the electrodes with Scotch-Brite (models - BTMIDI-2A & BTMIDI-3A).

5.0 FAULT FINDING

5.1 For fault finding refer to the fault finding sheets
BTMIDI-1: https://www.arrowvalves.co.uk/media/wysiwyg/pdfs/AM155A-BTMIDI-1-FAULT-FINDING-CHART.pdf
BTMIDI-2A: https://www.arrowvalves.co.uk/media/wysiwyg/pdfs/AM159A-BTMIDI-2A-FAULT-FINDING-CHART.pdf
BTMIDI-3A: https://www.arrowvalves.co.uk/media/wysiwyg/pdfs/AM154B-BTMIDI-3A-FAULT-FINDING-CHART.pdf

6.0 SEIZED PUMP

6.1 If the pump has not been used for several weeks, it is likely to be seized. Use the following instructions to free the pump.

6.2 Serial numbers up to MD589 have a *Grundfos Watermill* pump –

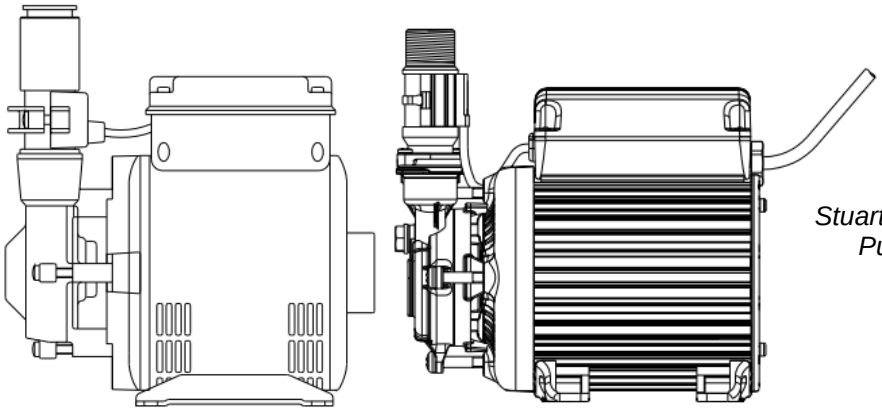
- 6.2.1 **Isolate power**!
- 6.2.2 Using a screwdriver, rotate the fan in the rear of the pump until free.
- 6.2.3 Restore power.

6.3 Serial number MD590 and over have a *Stuart Turner* pump -

- 6.3.1 **Isolate power**!
- 6.3.2 Unscrew the four screws securing the metal plate to the right hand side of the pump.
- 6.3.3 Prise off the metal plate with a screwdriver to reveal the fan.
- 6.3.4 Rotate the fan by hand until free.
- 6.3.5 Reassemble the pump.
- 6.3.6 Restore power.

6.4 Contact Arrow Valves for advice.

Grundfos Watermill Pump



Stuart Turner Pump

7.0 FILLING SOLENOID *(BTMIDI-3A Only)*

7.1 Under normal operation the Solenoid is closed – open when energised, closed when de-energised.

7.2 If the BTMIDI-3A's tank is constantly overflowing, with the power isolated, this is likely to be caused by dirt/debris trapped in the diaphragm of the Solenoid Valve.

7.3 Please use the following link to a service video for instructions on how to inspect and clean the Solenoid Valve - https://www.youtube.com/watch?v=qf-1iMNBKc0&t=13s

8.0 OPTIONS

Option	Code
Wall Mounting Bracket for Midi range	MIDIBRA
Midi-2A fitted with Auto Purge System	BTMIDI-2A-OP2
Midi-3A fitted with Auto Purge System	BTMIDI-3A-OP2
BTMD/BTHW Alarm BMS – Volt Free	BTBMS3
BTMIDI Frost Protection System	BTFPS2
Drip Tray for Midi range Stainless	BTDT3
Wall Cover for Midi-Break®	BTCAB4

Wall Mounting Bracket – Stainless steel wall bracket for the BTMIDI range.

Automatic Tank Purge System /24h - To assist with legionella control where applicable – e.g. infrequent use, warm environment, aerosol spray applications. Replenishes water in tank and runs pump for a few seconds every day.

BTMD/BTHW Alarm BMS - Volt Free BMS fault monitor with changeover. Activates fault lamp and BMS relay if tank water level is too high or low, or if there is a low pressure fault.

Frost Protection System - Recommended for unheated areas such as bins stores. For external installations, specify BTFPS2 and BTCAB4 Wall Cover.

Drip Tray – Catches any water discharged through weir if inlet valve is faulty and overflow blocked.

Wall Cover – Insulated GRP Wall Cover, ideal for bin stores and external installations. Supplied with mounting bracket, specify BTFPS2 and BTCAB4 Wall Cover.