



HIFLOW Mk 2 BV HEAT EXCHANGE UNIT Installation, Commissioning and Servicing Instructions

Publication No. ZZ 936/4
November 1999

NOTE: These instructions are to be read in conjunction with those supplied with the primary heating appliance before attempting installation.

1. GENERAL DESCRIPTION

- 1.1 The HIFLOW Mk2 BV enables a supply of domestic hot water to be provided at mains pressure, using heat energy transferred from an **EXISTING VENTED** hot water cylinder. Hot water from the storage vessel is circulated through a split plate heat exchanger by the pump. Cold mains water is also passed through the heat exchanger where the heat energy is transferred, before being passed to the hot water outlets. The pump is actuated by a flow switch in the mains water feed pipe, which detects the demand for hot water and turns the pump on. The storage vessel may be of either the direct or indirect type.
- 1.2 All connections to the HIFLOW Mk2 BV are by use of 22mm 'Tectite' connections (refer to Sect 5 for connection and disconnection of joints).
- 1.3 An in-line strainer, available from Johnson & Starley (Part No 1000-0700820), should be fitted in the cold water supply to protect the heat exchanger and flow switch from contamination. In hard water areas it is recommended that a scale inhibitor is fitted in the cold water supply. If in doubt, consult your local water company. In most areas it is recommended that a double check valve is fitted to the incoming mains. Again, if in doubt, consult your local water company.

WARNING: The domestic hot water operates at mains pressure, therefore all pipe work and hoses must be suitable for the relevant pressure and temperature duty.

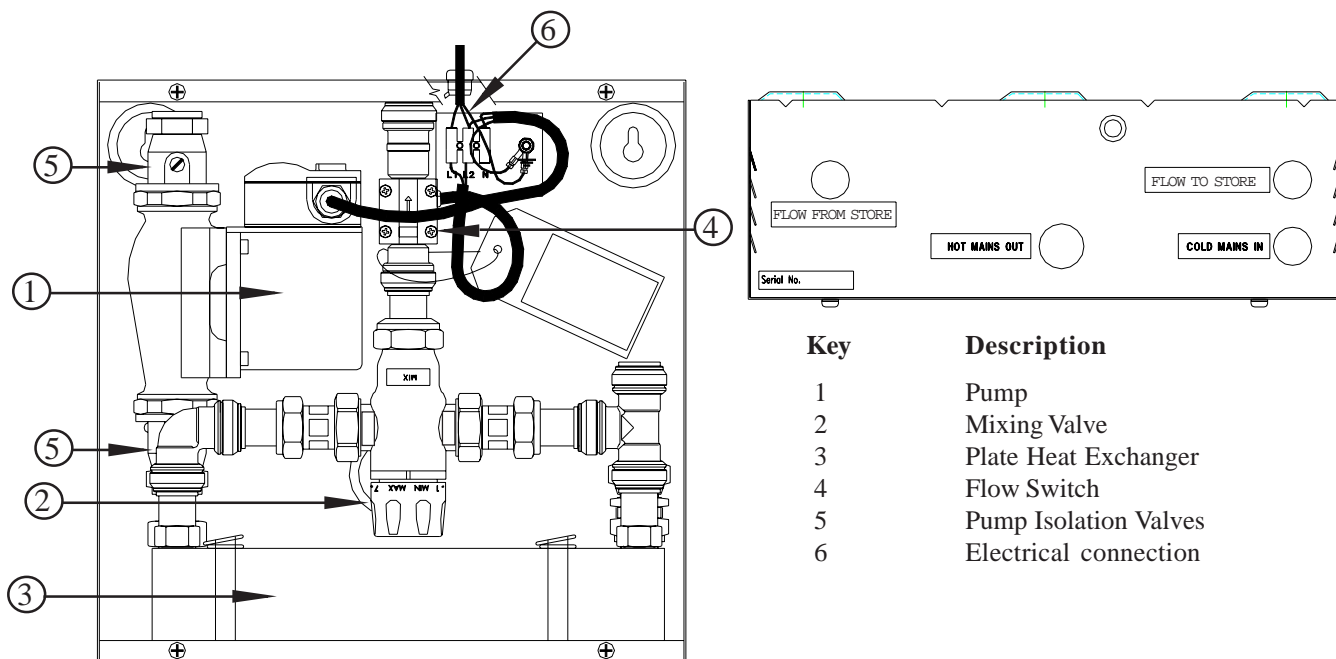


Fig. 1
HIFLOW Mk2 BV
Internal Details

2. INSTALLATION

2.1 Installation shall be in accordance with the latest editions of the following:

- BS5449 Forced circulation hot water systems.
- BS6700 Water Services for domestic use.
- The Model Bye-laws.
- Local Water Undertaking Bye-laws.
- I.E.E Wiring regulations.

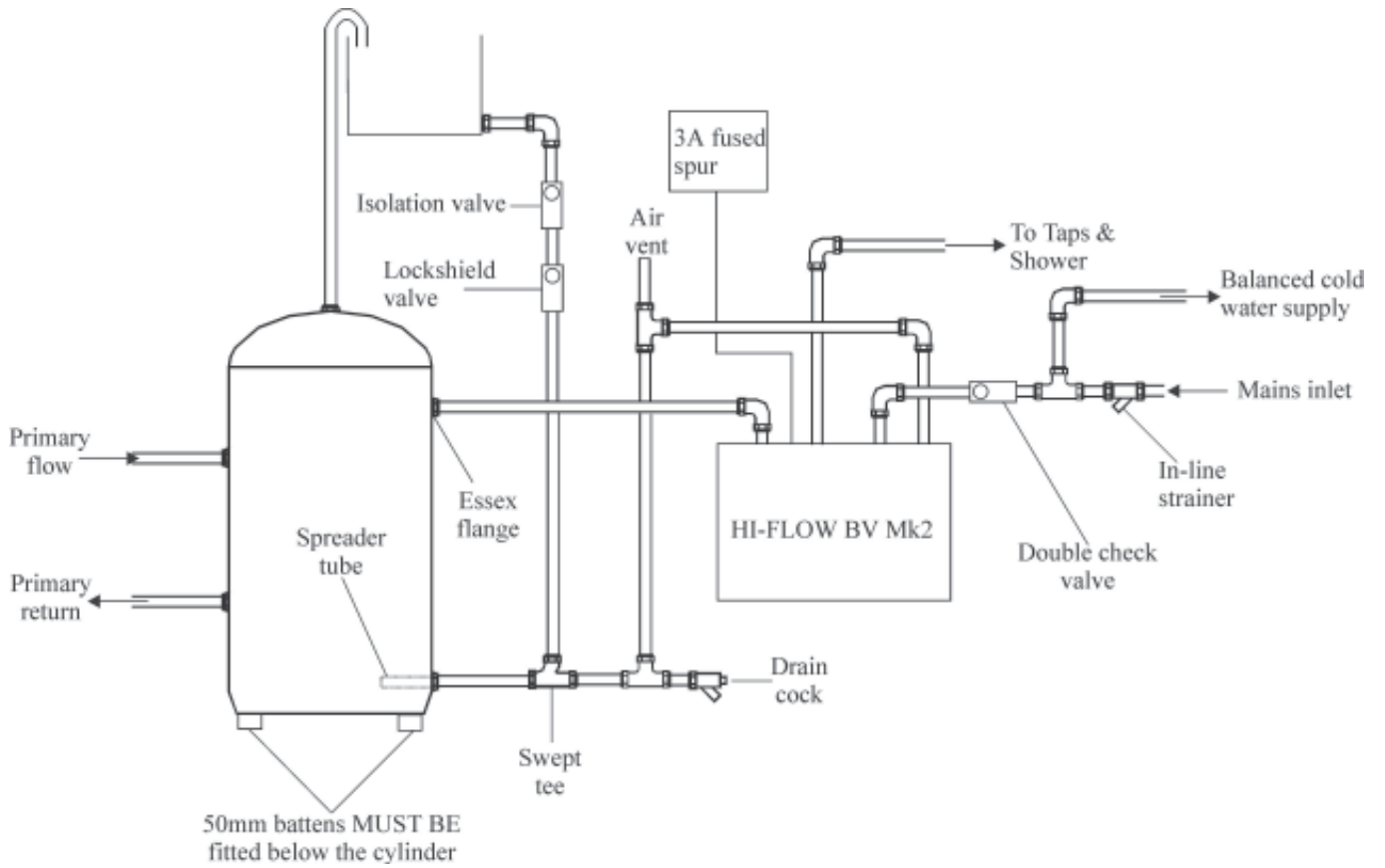


Fig. 2a
HIFLOW Mk2 BV Application Preferred Method

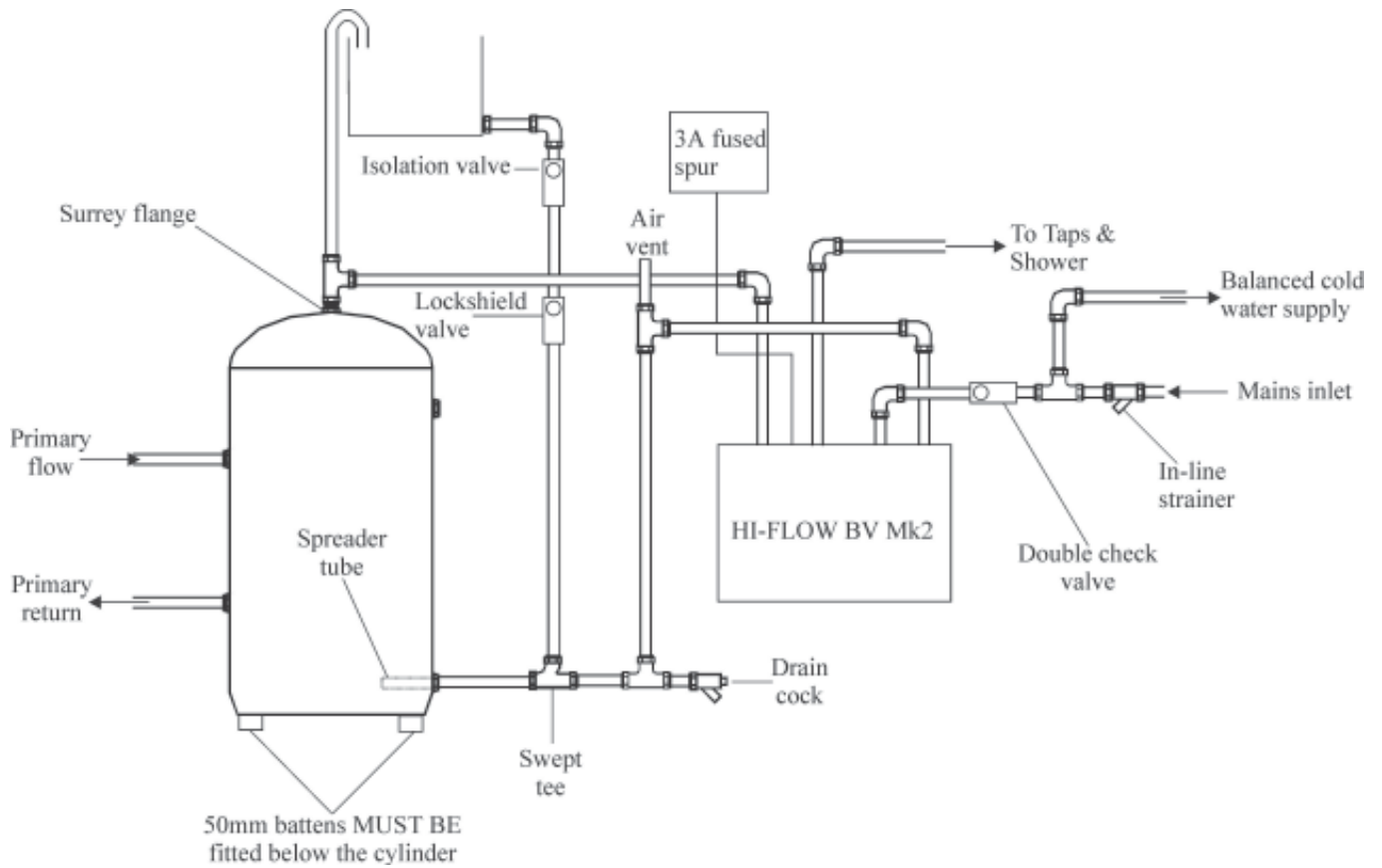


Fig. 2b
HIFLOW Mk2 BV Application with SURREY flange

- 2.2 The HIFLOW unit should be situated as close as possible to the hot water storage cylinder in order to minimise heat loss, and all exposed pipes should be lagged.
- 2.3 **Fitting HIFLOW unit to existing Gravity Feed Cylinder preferred method (Fig. 2a) :**
- 2.3.1 Remove the HIFLOW unit front cover and mount the unit upright on a vertical structure able to support its weight, using 3 x screws (not supplied), locating 2 x screws into the keyhole slots in the back of the case. Do not allow the pipework to take the weight of the unit. Secure the unit using the third screw.
- 2.3.2 Ensure that the mains water supply is turned OFF, and the cylinder is drained.
- 2.3.3 Replace the cylinder cold water inlet fitting with a 22mm compression swept tee.
- 2.3.4 Connect the **FLOW TO STORE** outlet from the HIFLOW unit to the cylinder via the 22mm swept tee, and J & S Spreader tube as shown in Fig. 2. **DO NOT TEE INTO THE GRAVITY COLD WATER SUPPLY PIPE.**
- 2.3.5 Connect the **FLOW FROM STORE** inlet of the HIFLOW unit to the cylinder using an Essex flange
- 2.3.6 Connect the HIFLOW unit **HOT MAINS OUT** outlet to the hot water outlets delivery pipe.
- 2.3.9 Tee the mains supply pipe at a convenient point, fitting an in-line strainer, and connect to the HIFLOW unit **COLD MAINS IN** inlet.
- 2.3.10 Refill the system, checking for leaks and clearing any air locks.
- 2.3.11 Set the cylinder thermostat (if fitted) to maximum, so that the cylinder temperature is controlled by the primary heating appliance thermostat.
- 2.3.12 Set the HIFLOW unit pump switch to '3'.
- 2.4 **Electrical Connection:**
- 2.4.1 The HIFLOW unit is supplied with 1.5m of mains cable, (PVC sheathed, 3 core Brown-Blue-Green/Yellow, 6A, 0.75mm²), exiting through the casing at the top RH rear. The cable is suitable for a 230V 50Hz single phase supply, fused at 5A.
- 2.4.2 The unit must be separately isolated from the mains supply by means of a fused double pole switch with a contact separation of 3mm minimum at each pole, and is to be wired as shown in Fig. 3
- 2.4.3 The conductor coloured Green/Yellow must be connected to the terminal marked 'E', coloured green/yellow, or by the symbol —|— .
- 2.4.4 The conductor coloured Blue must be connected to the terminal marked 'N', or coloured Blue.
- 2.4.5 The conductor coloured Brown must be connected to the terminal marked 'L', or coloured Brown.

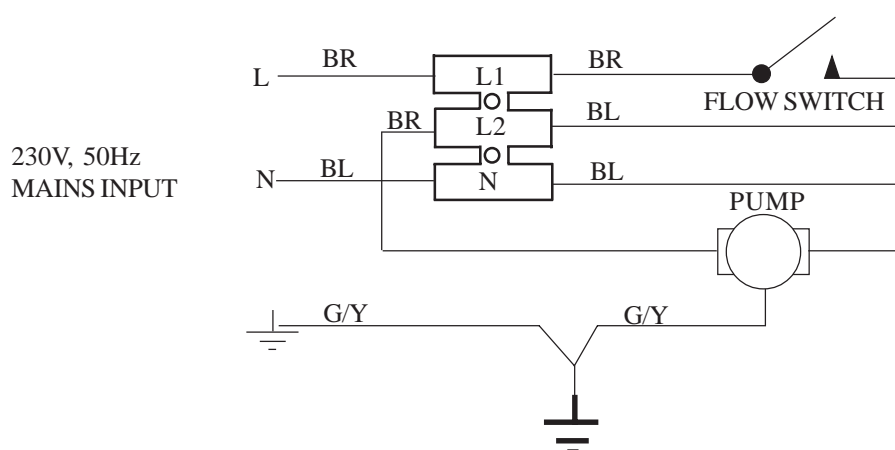


Fig. 3
HIFLOW WIRING SCHEMATIC

3. COMMISSIONING

- 3.1. Switch ON the electrical supply to the HIFLOW unit.
- 3.2. Ensure that the cylinder is at optimum temperature under control of the primary heating appliance.
- 3.3. Open a hot water tap, and set the Mixing valve to provide the required hot water temperature.

NOTE: The thermostatically controlled mixing valve ensures that the hot water is supplied at a constant temperature which is not dependant upon flow rate.

- 3.4. Close the hot water tap.
- 3.5. Fit and secure the HIFLOW unit front cover using 4 x 5mm screws.
- 3.6. A suitable inhibitor (Sentinel or Fernox) can be added to the stores water (minimum 1% mix) for protection of components. Flush the system thoroughly in accordance with BS7593 (current edition)

NOTE: If there is a tendency for the system to backfeed through the cold water feed into the header tank, partially close the lockshield valve until backfeeding no longer occurs.

4. INSTRUCTIONS FOR USER

- 4.1. Hand the User Instructions to the user, and ensure that they are aware of the following:

Due to the higher pressure in the hot water system, hot water will be drawn of at a higher rate than before, and therefore care should be taken to avoid wastage of energy.

The volume of hot water available is dependant upon the capacity of the hot water cylinder and the rate of heat input to the cylinder.

Any shower hoses fitted to the system must be suitable for the relevant temperature and pressure duty.

5. TECTITE CONNECTORS

5.1 Making a joint (Fig. 4).

- 5.1.1 Cut the pipe square using a rotary pipe cutter.
- 5.1.2 Check that the end of the pipe is free from burrs and sharp edges, and apply a chamfer if necessary.
- 5.1.3 Insert the pipe through the plastic release collar, and push firmly with a slight twisting action until a click is heard, as the pipe reaches the end stop
- 5.1.4 Pull on the pipe to ensure that the fitting is secure.



Fig. 4

5.2 Disconnecting a joint (Fig. 5).

- 5.2.1 Insert the disconnecting tool forks around the fitting, with the smaller fork placed around the pipe.
- 5.2.2 Squeeze the disconnecting tool with one hand until the plastic release collar is fully compressed, and twist out the pipe from the fitting with the other hand, using the thumb as a lever to assist disconnection.
- 5.2.3 Check the fitting for damage before remaking the joint.

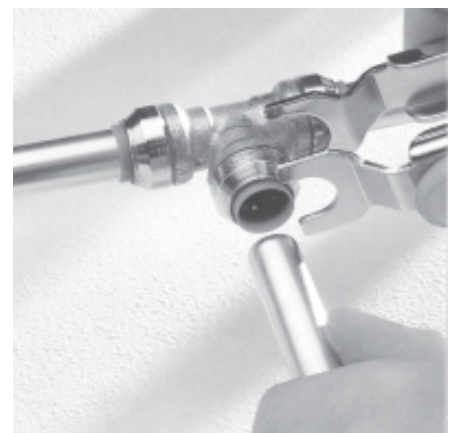


Fig. 5

5.3 Installation tips.

- 5.3.1 Ensure the pipe fits squarely into the fitting.
- 5.3.2 Excessive force should not be used when making a connection. If it is, the pipe and fitting should be disconnected and examined for damage as excessive force may damage the integrity of the joint.
- 5.3.3 Tectite fittings do not require heat or flux to achieve a water tight joint.

6.

DEFECT DIAGNOSIS

IMPORTANT: If an electrical defect occurs after installation of the unit, preliminary earth continuity, polarity and resistance to earth checks should be carried out with a multimeter. On completion of any service or defect diagnostic task which has required electrical disconnection and reconnection, earth continuity, polarity and resistance to earth checks should be repeated.

| Symptom | Possible Cause | Remedy |
|--------------------------------|--|--|
| HOT water running cold. | Air lock in water circuit. | Bleed circuit. |
| | No heat to the cylinder. | Restore heat supply. |
| | No electrical supply to system. | Check for 230V across L1 & N. |
| | No 230V across L2 & N. | Replace flow switch. |
| | 230V across L2 & N but pump not running. | Replace pump. |
| | Blocked heat exchanger. | Replace heat exchanger. NOTE: Nylon washer must NOT be used. |
| | Defective cylinder thermostat (if fitted). | Short out thermostat. |
| Persistent air in HIFLOW pump. | Check for leaks. | |

7.

SPARES LIST

| Key | Part No | Description | Qty |
|------------|----------------|----------------------------|------------|
| 1 | 1000-0300520 | Pump (Grundfos) | 1 |
| 2 | 1000-0300640 | Mixing Valve | 1 |
| 3 | 1000-0300480 | Heat Exchanger | 1 |
| 4 | 1000-0517810 | Flow Switch | 1 |
| 5 | 1000-0300490 | Pump Isolation Valve | 2 |
| 6 | 1000-0300890 | Tectite 22mm elbow | 1 |
| 7 | 1000-0300860 | Shank Adaptor | 2 |
| 8 | 1000-0300530 | Straight Swivel Connector | 1 |
| 9 | 1000-0300880 | Tectite 22mm Equal Tee | 1 |
| 10 | 1000-0300870 | Tap Connector | 1 |
| | 1000-0300940 | Tectite Disconnection tool | 1 |

Johnson and Starley prides itself on its ability to supply spare parts quickly and efficiently. If your service engineer indicates a problem in obtaining a spare part, advise him to contact Johnson and Starley Spares Department at the address below.

Telephone: 01604 762881

Fax : 01604 767408

JOHNSON AND STARLEY Ltd.,
Rhosili Road,
Brackmills,
Northampton, NN4 7LZ