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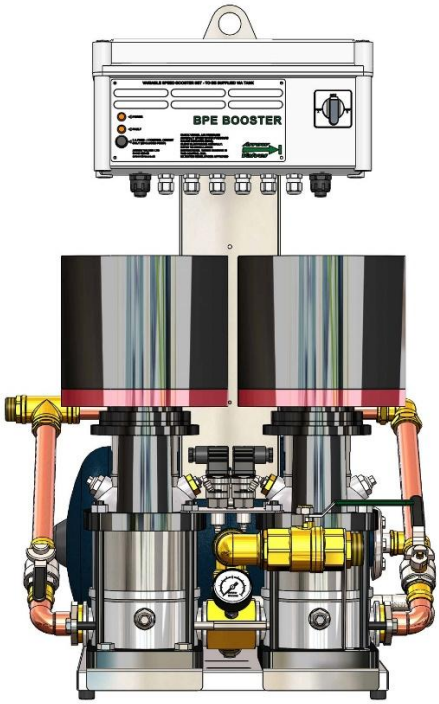
Operating & Maintenance Manual
BPE Booster Pump Set
Variable Speed Dual Pump, Duty Standby



Model shown – BPE3-10SLC1

FOREWORD

The BPE Variable Speed Dual Pump Booster Pump assemblies provide a boosting facility from existing tanks on demand for elevated areas or where a high flow rate is required. If used in conjunction with a break tank with type AB air gap the set can be used for Fluid Category 5 applications.

The Duty Standby pumps alternate which pump is running on a daily switchover. In the event of a pump failure, the working pump will operate.

SUPPORTING LITERATURE

Datasheet BPE
Wiring Diagram AM135*
Grundfos Handbook

WARNING!

Disconnect electrical power before removing electrical cover or any servicing

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1.0 INSTALLATION – MECHANICAL

1.1. The Booster Pump Set 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. Install in an area not liable to flooding or freezing (outdoor heated GRP enclosures are available).

1.3. The unit is floor mounted.

1.4. Thoroughly flush the supply pipe before connecting.

1.5. Connect the supply pipe to the inlet side of the pump, an elevation of 0.3 m is recommended from the tank to the pump. A stainless braided hose is supplied. Ensure this is not kinked or stressed. It is advisable to connect a servicing valve before the inlet pipe and fit with a fibre washer in the joint.

1.6. Connect the pump outlet flexible hose. Ensure the union nut is tight and use fibre washers.

2.0 INSTALLATION – ELECTRICAL

2.1. The unit requires a 230-240V single phase supply. The electrical supply must be via a circuit breaker (see datasheet).

2.2. Screw terminals are supplied and colour coded according to standards.

2.3. Connect a minimum 1.5 mm^2 three core cable to the control box. Feed through gland and tighten.

2.4. Strip 10 mm of insulation off each wire and insert into screw terminals, fully tighten.

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3.0 INSTALLATION – ELECTRODES

3.1. The electrodes come with 1” BSP thread mounting and lock nut to hold them in place, these should be mounted in the lid of the cistern.

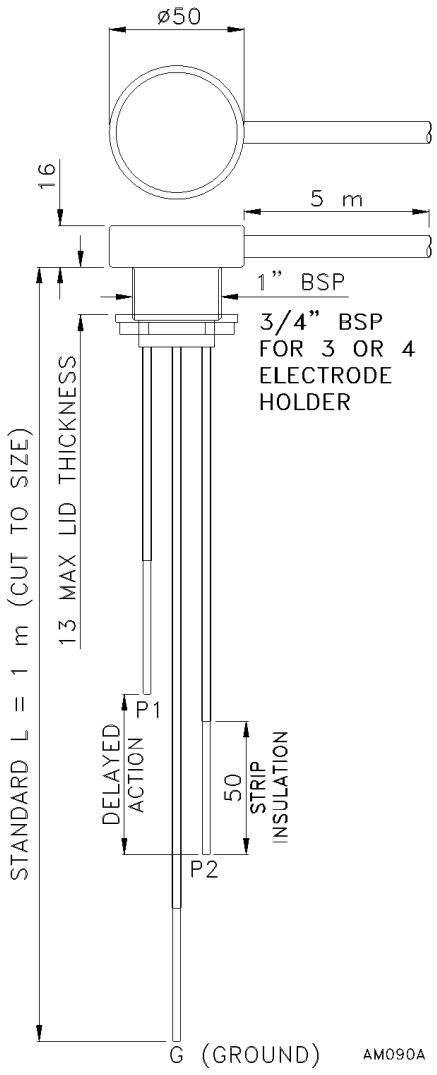
3.2. The electrodes are supplied at a length of 1 m long and should be cut to length on site with the ground electrode not being lower than the top of the outlet pipe, so if the tank does start to run dry no air is sucked into the system.

3.3. Once the electrodes have been cut to length, 50 mm of insulation should be stripped from the bottom of each electrode.

3.4. The electrodes work on a low voltage ac signal to prevent electrolysis. It is recommended that the electrodes are annually cleaned with Scotch-Brite.

The table below shows the electrode configurations for the BPELC1 models.

COLOUR	SUGGESTED USE
STAINLESS STEEL	GROUND
BLUE	PUMP RESET
RED	PUMP STOP



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4.0 PRIMING & TESTING

4.1. The units are supplied with the pumps isolated on the RCB's in the control box (Green for safe). Once the unit has been connected to the water and electrical supply, fit the control box lid to prevent any water entering the controls during venting. Make sure the servicing valves to the solenoids are open, and the outlet valve is closed. Turn on both the water and electrical supply. The unit should commence filling.

4.2. Once the break tank is full, open the vent on top of each pump to expel all of the air in the pump housing, note the break tank should refill during this process.

4.3. When the water runs clear, tighten the vent screws.

4.4. Isolate the unit electrically, remove the control box lid, switch the RCD's on and replace the control box lid.

4.5. Switch the unit on electrically.

4.6. Select pump A on the rotary switch, the pump should spin up and the pressure should rise.

4.7. Open the outlet valve and an outlet connected to the unit, once the water runs free from air isolate the outlet and check the pump switches off at the set-point stamped on the label.

4.8. Isolate the outlet valve on the pump set, and turn the pump selection switch to pump B. repeat the process 4.7

4.9. Once the pumps have stabilized, turn the selector to "Auto" (this may cause one of the pumps to run for a while, this is normal).

4.10. In the event of the pumps not clearing the air in the system, repeat the above process but undo the needle valve on the bottom of the pumps (this does not undo completely). Open the outlet as before, the tone of the pump will change. Once the pressure begins to rise close the needle valve.

5.0 ADJUSTMENTS

5.1. The unit is factory commissioned and there are no user adjustments. Contact Arrow Valves to arrange for an on-site commissioning if required (please note this would be chargeable).

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6.0 PUMP DETAILS & MAINTENANCE

Disconnect electrical power before any servicing operation and make sure the pump cannot be accidentally switched on.
ATTENTION -See Grundfos Operation Manual for additional information.

6.1. If the pump remains inactive for long periods, it must be emptied completely and, preferably, dried.
6.2. If the pump is temporarily operated with dirty liquids, run the pump briefly with clean water to remove deposits. In any case, when the pump remains inactive it must be emptied completely if there is a risk of freezing. Before restarting the unit, check that the shaft is not jammed.
6.3. A wiring diagram is provided on the inside of the cover to the electrical box.

7.0 LEVEL CONTROLLER

7.1. Principle of Operation - Relies on the conductivity properties of liquids to complete an electrical circuit between electrodes. A low voltage A.C. signal is used on the electrodes to avoid electrolysis.
7.2. Technical - RELAY OUTPUT – Double pole changeover voltage free contacts rated 8A @ 250VAC resistive.

8.0 OPTIONS

CODE	DESCRIPTION	SUITABILITY
BTCAB1	Enc. 1120x1120x1050 GRP c/w Heating	All
BTDT-LARGE	GRP Drip Tray c/w Float Switch Variable BT	All

BTCAB1 – GRP heated enclosure with kiosk door, for the external use of all Booster Set units. The housing has an integrated bar heater, complete with thermostat.

Drip Tray – To capture any leak, where it is impractical to fit an overflow. When the Drip Tray fills with water, the float switch is activated and isolates the water supply, stopping the pump.

9.0 SPARES

The table below shows part numbers, codes and descriptions for spares, which may be required for the BPE Dual Pump units, contact Arrow Valves on 01442 823123 or online at www.arrowvalves.co.uk.

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CODE	DESCRIPTION
A232	OUTLET HOSE DN20
A282	OUTLET HOSE DN25
A249	OUTLET HOSE DN32
A230	INLET HOSE DN20
A231	INLET HOSE DN25
A238	INLET HOSE DN32
PMP 96455086	GRUNDFOS PUMP SEAL KIT

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