Arrow Valves Ltd

Tel 01442 823 123
Fax 01442 823 234

info@arrowvalves.co.uk
www.arrowvalves.co.uk

Installation Instructions/ Operating & Maintenance Manual Booster Pump Set Models BPELC1 & BPELC2

INDEX

FOREWORD

The BPE series 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.

1. LITERATURE PROVIDED

Data Sheet BPE
Wiring Diagram AM077*
Grundfos Handbook

2. APPLICATIONS

The unit should be used to boost pressure from a suitable tank, to elevated areas or to areas where high flow rate is required..

3. INSTALLATION

3.1 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

3.2 Unpack the unit, taking care not to lift on the grey electrical box (lift by the base plate or by using the copper elbow). **Warning!** The units weigh between 28- 67 kg dry and 68 – 109 kg wet, safe lifting practices should be implemented.

3.3 Install in an area not liable to flooding or freezing (outdoor heated GRP enclosures are available)

3.4 Normally the unit is floor mounted but suitable wall brackets can be used with suitable fasteners (Option BRA).

3.5 Thoroughly flush the supply pipe before connecting. An integral strainer is part of the inlet arm before the solenoid on LC2 sets. – (debris can damage the solenoid valves)

3.6 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. For option LC2 a supply pressure of 1 bar is required to the inlet of the solenoid filling arm. 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

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

3.8 Electrical Connection 230-240 v single phase. (3 Series & 5 Series to model 5-8) The electrical supply must be via a circuit breaker (see datasheet). Screw terminals are supplied and colour coded according to standards. Connect a minimum 1.5 mm^2 three core cable to the control box. Feed through gland and tighten. Strip 10 mm of insulation off each wire and insert into screw terminals fully tighten.

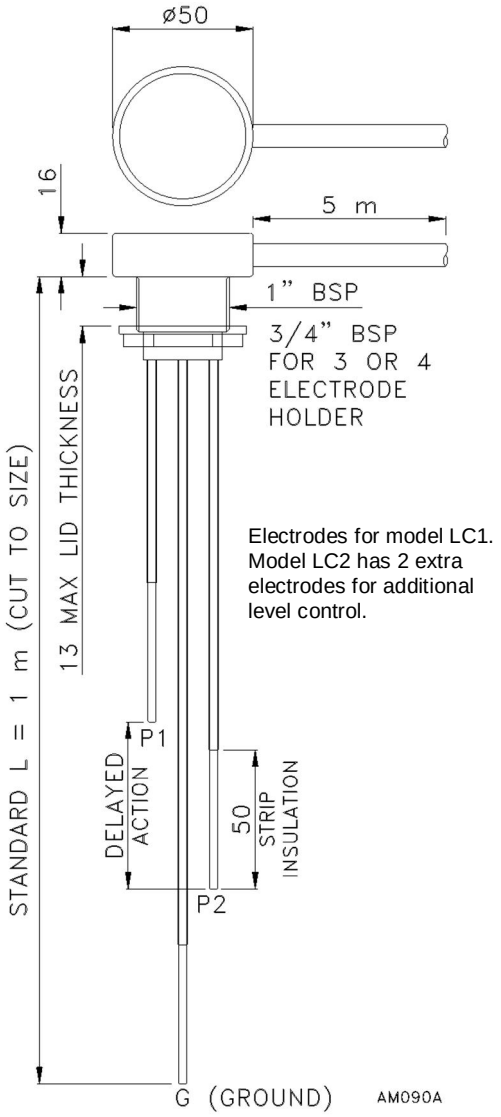
3.9 Electrical Connection 415 V 3 phase - The electrical supply must be via a circuit breaker (see datasheet). The wiring requires 3 phases and neutral. Strip 10 mm of insulation off each wire and insert into screw terminals fully tighten. After connection it is advised that the motor direction is checked.

4. INSTALLATION OF ELECTRODES

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. 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. When the electrodes have been cut to length 50 mm of insulation should be stripped from the bottom of each electrode. 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 both the BPELC1 & BPELC2 models.

Colour	Suggested use
Stainless Steel	Ground
Blue	Pump Reset
Red	Pump Stop
Black	Solenoid on
Brown	Solenoid off



(Note Model BPELC2 has 5 electrodes as per colours in table)

5. PRIMING & TESTING

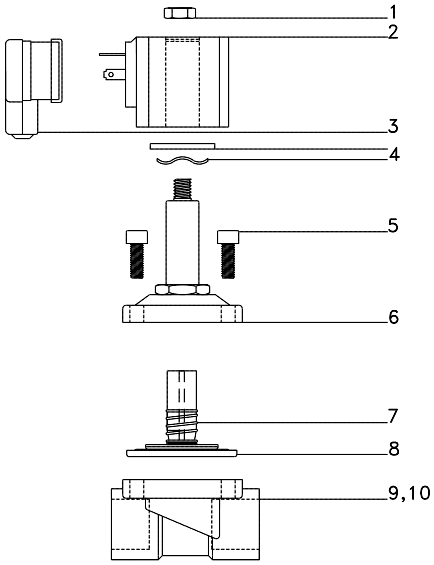
5.1. Close the isolating valve on the pump outlet and open the inlet.
5.2. Remove the priming plug from the pump head and slowly fill the pump. Replace the priming plug.
5.3. Start the pump and check the direction of rotation.
5.4. Vent the pump by means of the vent valve in the pump head. At the same time partially open the outlet servicing valve.
5.5. Close the vent valve when a steady stream of liquid runs out of it.
5.6. Completely open outlet servicing valve.

6. ADJUSTMENTS

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)

7. SOLENOID SERVICE INFORMATION

Model SOL**FACD



Two-way, normally closed, anti-water hammer solenoid valves with hung diaphragm.

Valve bodies and bonnets are of brass construction.

Standard valves have a General Purpose Solenoid Enclosure.

DESCRIPTION

1. *Retaining Nut*
2. *Coil & nameplate*
3. *Connector assy.*
4. *Spring washer*
5. *Screw (4x)*
6. *Bonnet assy.*
7. *Spring*
8. *Diaphragm/core assy.*
9. *O-ring, valve body*
10. *Valve body*

8. PUMP DETAILS

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

A *MAINTENANCE*

If the pump remains inactive for long periods, it must be emptied completely and, preferably, dried.

For good measure, as in the case of temporary operation 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.

A wiring diagram is provided on the inside of the cover to the electrical box.

9. BROYCE LEVEL CONTROLLER

Installation

a) 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.

b) Technical:

RELAY OUTPUT – Double pole changeover voltage free contacts rated 8A @ 250VAC resistive.

10. OPTIONS

Code	Description
BPELC1	Low level Controller to protect pump (standard model)
BPELC2	LC1+ additional controller for tank filling with solenoid controlled filling arm
BTBRA	Wall brackets for pump sets up to 5-8
BTDT1	GRP Drip tray c/w float switch
BTCAB1	Enc. 1100x1100x1050 GRP c/w heating
BTCAB2	Enc. 600x600x780 GRP c/w frost protection
BTCAB3	BT wall cover 1035x735x610

BPELC1: Low level control - to protect pump as standard

BPELC2: Additional solenoid - as LC1 but with additional solenoid control for solenoid controlled filling arm.

BTBRA:- Wall Brackets - for wall mounting units up to model 5-8 ensure suitable wall and fasteners are used

BTDT1: GRP Drip tray with float switch – A drip tray to capture any leak if an overflow pipe is not feasible, the water inlet solenoid is isolated if the float switch is activated, when the drip tray is full and requires emptying.

BTCAB1: GRP enclosure - A GRP enclosure for outdoor use comes with heating

BTCAB2: GRP enclosure - A GRP enclosure for outdoor use comes with frost protection system.

BTCAB3:- A GRP enclosure - to go with the wall bracket option.

11. Spares

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

Arrow Valves Ltd reserves the right to change specifications at any time without notice.

Description	Code	Size	Description
Level Controller	BT		Level Controller 2 Pole Output 230VAC
Solenoid Spares Kit	SOLIP4962A/2	DN15-25	Solenoid Spares Kit for model ACD DN15-25
Outlet Hose	A232A	DN20	BT Outlet Hose DN20
Inlet Hose	A230A	DN20	BT Inlet Hose DN20
Inlet Hose	A231A	DN25	BT Inlet Hose DN25
Inlet Hose	A238B	DN32	BT Inlet Hose DN32
Outlet Hose	A249B	DN32	BT Outlet Hose DN32
Seal Kit Grundfos Pump	96455086		Seal Kit 5-10 (HQQE)