Phlexiflow Shower *Waste Pump*

P.6821604 Top Exit P.6821605 Bottom Exit
P.6821606 Wet Floor (Bottom Exit) P.6821607 Deep Bottom Exit P 6821617 High Capacity

WARNING
All electrical connections must be made prior to turning the power on.
If the red/black wires touch each other or one of the white wires touches a red/black wire, damage to the control unit will result.
Fit the flow switch in the mains water feed to the electric shower NOT to the outlet of the tray. For thermostatic mixers, use two flow switches.

IMPORTANT INSTRUCTIONS

Please note the following important instructions before continuing with this installation.

DO
Do ensure you only use the pump with the top or bottom exit kit supplied. These units are designed to minimize noise produced during pumping.
Do ensure debris does not enter the pump, pipework or shower trap/sump during installation.
Do use a second flow switch P.68214.94 when the installation is a mixer valve shower.

DO NOT
Do not run the pump dry at any time. (see commissioning). Dry running of more than a couple of minutes may cause internal damage to the pump or will cause the control unit to go into self-protect mode.
Do not apply mains electricity (240v) to any point of the system, other than the 2-core blue/brown lead on the control unit.
Do not fit the control unit in a hot environment, i.e. top of an airing cupboard - the unit needs to be below 25c (normal room temp 20c) as a raised running temperature will give a reduced duty cycle.
This system is designed for domestic use only, it is not rated for continual use (duty cycle 60mins on 30 mins off).

Please read these instructions before starting work, as it may save time later

Introduction
This system enables a shower to be installed virtually anywhere in a house, as the removal of water no longer relies on gravity.
The Phlexiflow shower waste pump system consists of a rugged flexible impellor pump controlled by a flow switch (2 required for a mixer valve) in the water feed to the shower and a special control unit. When water moves through the flow switch the control unit is activated and the pump cycle starts.
The system pumps in bursts of pumping separated by brief rest periods; this is to enable the system to work as quietly as possible.
When water stops flowing at the end of the shower a new set of timers are activated. In the off mode the pump will operate in short bursts separated by extended periods of rest; this again is to minimize the noise produced and also ensures the pump does not run dry.

IMPORTANT INSTRUCTIONS/LIMITATIONS
This product is designed for use in the domestic environment and is not suitable for multi-occupancy, multi-shower use.
The supplied flow switch must be used; as any other form of controlling the pump will not necessarily ensure protection from dry running (for example any manual form of switching is relying on the user remembering to turn it off).
The pump is only suitable for bathing water, it will not remove solids - ensure building waste does not enter the trap/sump or the pipework.
All electrical installation work must be carried out by a suitably qualified engineer to the current I.E.E. Regulations (applicable at time of installation).
This product cannot be run dry, see installation/commissioning section.

Warranty
Confidence in the quality of our products allows us to offer a five-year warranty on our pumps. If these products are proven to be defective by reason only of manufacturing workmanship we will, at our discretion, provide replacement product free of charge. Our liability is limited to the cost of replacement only on production of purchase invoice or receipt.
This warranty excludes normal wear and tear in a domestic or residential application. Product abuse, misuse, improper installation or any other type of damage are excluded from this warranty.

Siting the Equipment

Pump Unit. This unit must be mounted outside of the shower cubicle or room as although it only uses 24v DC, it must not be in direct contact with shower water. An ideal height above floor level is 6" - 9" (150-225mm) to the underside of the case (diag. 1 shows a typical installation) To make the pipework easier, this pump will operate with the flow going in either direction, it is just a matter of connecting the power following the instructions on the pump label.
Included in the kit is a special reservoir chamber which must be fitted on the outlet side of the pump. There is also a similar pipe arrangement for the inlet (**remove the red caps**)
Fill the pipework with water and fix the pump in position, this will ensure on initial start up that the pump is fully primed.

Control Unit. This box contains the 240v/24v transformer and the control printed circuit board. As 240v is present this control unit must be mounted out of the wet area, suggested places being adjacent cupboard or adjacent room high on the wall. If mounted in an airing cupboard, ensure it is low down and will not be heated by the ambient air above 25c.
NOTE - The transformer must not be covered with clothes etc. it relies on the free movement of air to keep cool.

Flow Switch. This device is fitted in the pipe feeding the shower unit. It can be mounted in any orientation i.e. horizontal or vertical, as it has a spring return built in but the 'flow arrow' must be observed to ensure it is installed with the water flowing through it in the correct direction.
If the shower is a mixer unit rather than a water heater, an additional flow switch will be required, as both the hot and cold feeds need to be sensed (Part No. P.68214.94)
In a double flow switch installation, the switches are wired in parallel (see diag.)
N.B. Flow switches should remain accessible after installation. Do not box them in or place under the floor.

Electrical Installation.
The ideal supply will be a spur from the existing ring main, but as this system does not use a lot of power it can be run from a lighting circuit, although loadings from existing installations will need to be checked.
The control unit should ideally be wired via a switched spur; this must have double pole disconnection with a separation gap of at least 3mm.
Alternatively, a 13amp plug (fused at 3 amps) into a switched socket to facilitate service. (*Make clear to the user that this must not be turned off, as that will stop the pump from working).*
At all times I.E.E. Regulations must be complied with.
Any 240v cable used must be double insulated 2 core of 0.5mm squared section or greater.

Low Voltage Pump Supply.
Using the 2-core red/black cable supplied fitted to the control unit, wire to the pump. This cable carries the D.C. supply - see the table on the pump label as this connection is used to set the direction of flow from the pump.

Switch Wiring
Connect the 2-core fig. 8 cable directly to the 2 black wires from the flow switch, polarity is not important.
N.B A mistake at this stage could damage either the control unit or the flow switch, check to make sure you have connected the correct wire and always do this with the power turned off.

Top and Bottom Exit Kit
Fit the sump to the tray as you would a normal shower trap, ensuring the area around the tray exit is able to provide a good seal. It would be advisable to test the system before final fitting of the tray or tiling is done, as tray removal will possibly be necessary if the sump joint leaks.
Wet Floor Kit
Fit the gulley and pipework to either the floor former or position it in the floor prior to a floor covering being applied.

Plumbing
With the pump positioned and the exit kit mounted, simply run 15mm pipes to connect the system, this includes the run to the waste. (An adaptor kit is provided to easily connect 15mm copper into 1½" plastic).
Keep to a minimum the number of soldered bends using swept bends wherever possible. All pipework must be cleaned prior to use, as sharp off-cuts could damage the pump.
Ensure solder and solder flux do not come into contact with any of the component parts of the system.

Commissioning

Once the installation is in place, it is best to initially commission it prior to finishing any building work, i.e. tiling.
Check over your electrical and plumbing installation, once satisfied everything is correct put a couple of litres of water into the shower tray; this should fill the sump and leave some water in the tray.
Turn on the power, the pump should run for a couple of seconds, this will draw some of the water into the waste system and leave the pump ready for the shower to be turned on.
If the system works as above, the next step is to turn on the shower to ensure the pump can keep the tray drained correctly.
There will always be a volume of water lying in the tray during the shower, as draining it relies on the water flowing in to the sump to be pumped away.
This test needs to be done with cool water, as this will give the highest flow rate from the shower. If you set the system up in the winter on a hot shower, during warmer periods of the year with a cool shower being used the pump may not be able to keep up because of the increased flow.
If, however, after 2 or 3 minutes the level of water appears to be increasing, the settings of the control unit will need to be altered. (check for air leaks in the system).
This should only be necessary if the shower flow rate exceeds 8 LPM; this must be confirmed by measuring prior to any adjustment.
On the base of the control unit you will find access holes to various adjustment points, using a very small screwdriver rotate the adjusters to obtain the desired performance (see over page for detailed explanation.) Do not use excessive pressure. The full extent of adjustment is only ¾ of a turn.

Fault Finding

Pump will not run -
Check the 240v supply
Check the flow switch is working - if you disconnect the black flow switch wire from the unit and touch and hold the two white wires from the control unit together, the pump should start after about a 5 second delay.
Using a meter set to 50v DC range check for voltage at the pump with the flow switch wires shorted as above - should read 10 - 25v (This is variable - we are just checking for a voltage).
From the above tests
If a voltage is on the pump it should be running, so suspect the pump.
If the pump only runs when the switch wires are touched together, the flow switch is at fault.

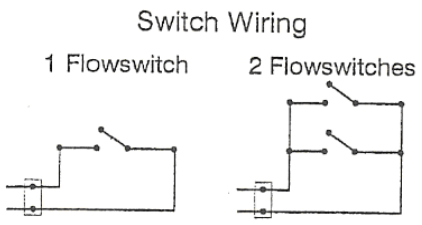
(It may have debris holding the float down - remove from the pipework and inspect).
If you have a 240v supply and with the switch wires linked there is no voltage at the pump then the control unit should be replaced. (This control unit is self protecting, so it may have switched off internally - turn off the mains voltage supply for about 20 mins to allow it to reset then re-try the above tests).

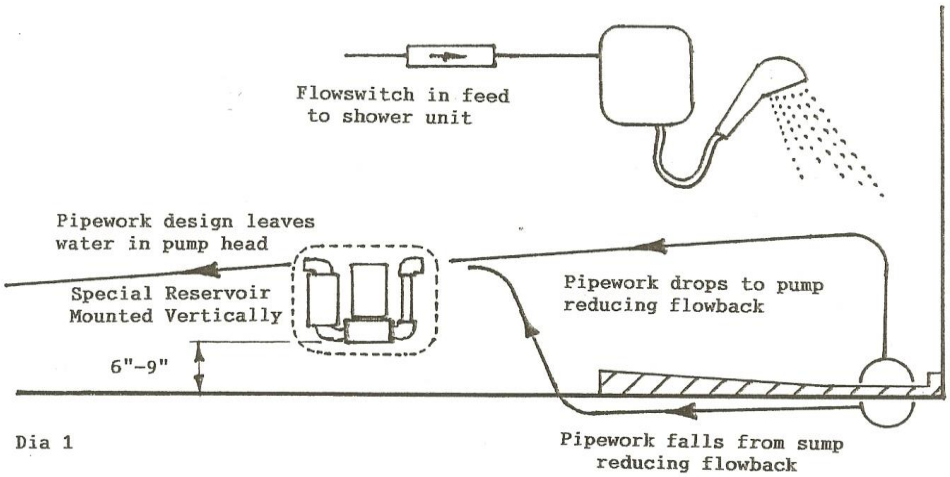
Pump is running but will not remove water from tray

Check for air leaks prior to the pump.
Check for blockage in the pipework.
Slightly loosen (by ¼ of a turn) the 3 impeller plate bolts, ensuring a seal is still maintained.
Remove impellor from the pump and check for damage.
Do not over-tighten the impellor plate bolts.

Control Unit Settings

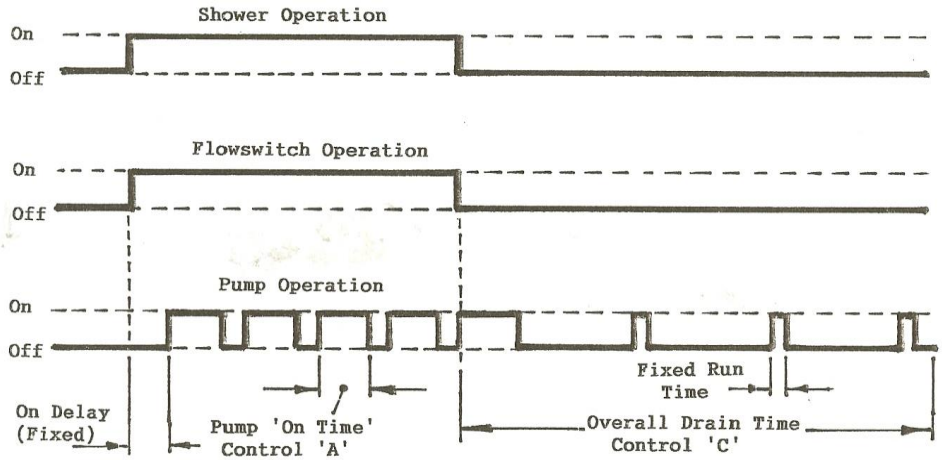
As supplied this 'PHLEXIFLOW' system will easily cope with 8 litre/min showers.
It has the ability to cope with showers up to 12 litres/min (and possibly more in short run minimal bend pipework installation) The high capacity pump can cope with a shower output of between 12-20 litres per minute.
The system performance is adjustable by the use of a set of controls found on the rear of the control unit (this positioning makes it hard for the user to modify the settings once the installation is completed).
With reference to Diag. 2 and 3 the following explains the adjustments possible with the controls.
Control A Once the system is running, this setting controls the length of time the pump is turned ON and OFF (see fig. 2) in each pumping cycle. Turning this control clockwise decreases the on time and increases the off time effectively making the pump run for a shorter length of time (in the fully anti-clockwise position the pump is virtually running continuously).
Control B Pump speed - Turn clockwise to increase the pumping performance for high flow rate showers, or to cope with longer runs of pipework where the standard setting does not drain the tray fast enough.
Control C This timer controls the overall length of the 'after shower' drain period. It starts as soon as the shower is turned off and is factory set at 30secs, turning the control clockwise will increase this time up to 5 extra runs. Remember that the pump does not run continuously. It will operate in short bursts, separated by prolonged periods of rest. This is to minimize any noise produced and also ensure the pump does not run dry.

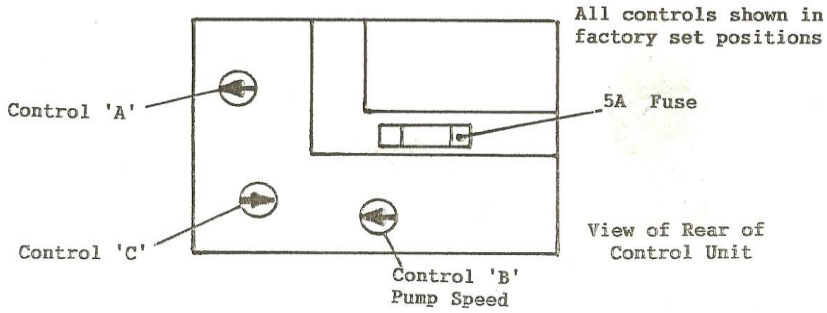




Dia 1

System Operating Diagram Dia 2





Dia 3