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Powerflush™

Installation and operating Guidelines

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1.0 Product Summary

The Powerflush™ macerator is a fully automatic pump unit for the removal of toilet effluent and wastewater from a complete bathroom when gravity drainage is impossible or uneconomical to install. The Powerflush™ incorporates a unique cutting system that can shred not only standard toilet waste but also sanitary articles (i.e. tampons, condoms) which are accidentally disposed of into the WC pan making it ideal for situations where the users are anonymous. Therefore the Powerflush™ is suitable for both domestic and commercial applications.

The Powerflush™ is also available with an integral High-level alarm.

The Powerflush™ can lift up to 7 metres vertically, 40 metres horizontally or a combination of the two).

2.0 Installation Guidelines

The Powerflush™ must be mounted on a firm, level surface. This surface must be resistant to any condensation that may form around the unit. The design of the Powerflush™ is for a direct toilet connection and so should be set-up immediately behind the toilet with the sealing sleeve drawn up directly onto the toilet outflow pipe.

The discharge line can be connected to the Powerflush™ on either the left or the right hand side of the unit as required, with the discharge port not being used sealed off using the blanking cap provided. Next the non- return valve should be fitted directly onto the other discharge port ensuring the arrow on the valve is pointing away from the unit with the hinged flap at the top. The recommended discharge pipework should be in 32mm OD solvent weld waste pipe with the pipe run having as few bends as possible, with no bends in the vertical lift for optimum performance. It is essential that all pipework is fixed and rigid so as to prevent any movement when the pump is in operation. The connection of the discharge pipework to the unit is via the non-return valve and should be fixed into position using the hose

clamps provided ensuring that the connection is watertight.

Important - The discharge pipework must be either solvent weld or copper waste pipe. NEVER use push fit or compression fittings.

An air admittance valve complete with a swept tee-piece is provided for installation in the discharge line to prevent the possibility of an air lock occurring within the pipework. The air admittance valve should be installed at the beginning of the horizontal plane at the top of the vertical lift with the sweep of the tee-piece against the flow.

For connection of additional bathroom appliances such as a wash hand basin, bidet or shower there are two inlets provided on either side of the unit. The inlets consist of a push in seal complete with non-return valve. To connect the incoming pipework to the inlets you must first remove the plastic blanking cap and ensure that the position of the seal is such that letters OBEN are at the top. Next you must push the straight coupling into place within the seal ensuring that it is pushed fully home and is not infringing the operation of the non-return valve. Finally solvent weld the incoming pipe into the straight coupling. Connection to the sewage system should be directly into the soil stack via a branch pipe, a strap on boss or an integral boss on an existing fitting. A ventilation drain point may also be used as a connection to an inspection chamber by installing a new drain line.

Finally a suitably qualified person should connect the Powerflush™ to a 220/240v unswitched-fused spur, in accordance to electrical regulations.

3.0 Technical Specifications

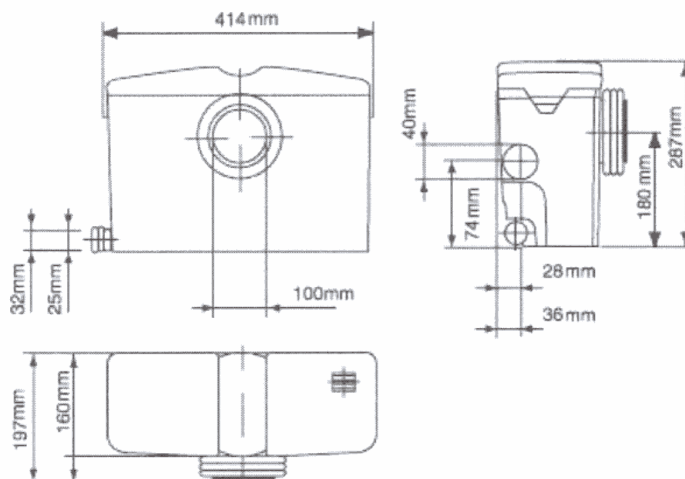
3.1 Electrical Details

Type of Current	Voltage (V)	Motor Rating (kW)	RPM	F.L.C. (Amps)
1-Phase	230	1.1	2750	4.7

3.2 Pump Performance

Delivery Head (m)	1	2	3	4	5	6	7	8
Flow Rate (L/min)	120	96	84	78	75	72	63	54

4.0 Dimensions



5.0 Parts List

The Powerflush™ macerator is available as standard with the following fittings:

1. Non-Return Valve
2. Hose Clamp (x2)
3. Rubber Blanking Cap c/w Hose Clamp
4. Fixing Screw (x2)
5. Dowel Floor Fixing (x2)
6. Ground Fixing (x2)
7. 32mm White Straight Coupling (x2)
8. Air Admittance Valve c/w 32mm Swept Tee-Piece

Replacement Parts List

1. Pump Assembly (Product Code:- 1007)
2. Electronic Control Assembly (1008)
3. Electronic Control Assembly with High Level Alarm (1009)
4. Pressure Switch (1031)
5. Capacitor (1030)
6. Tank inc. Lid (1038)
7. Non-Return Valve (1019)

6.0 Transport

Carefully unpack the Powerflush™ from its packing and inspect for any signs of damage. Should there be any damage present it must be reported to Pump Technical Services Limited immediately (no claim will be considered after 24 hours from time of delivery).

7.0 Maintenance

The Powerflush™ requires minimal maintenance. Basic common sense and good housekeeping will ensure the best results.

It is recommended that the unit be flushed through with bleach or any other suitable domestic cleaning product as you would a standard WC. This should help break down any build up of solids within the unit that may inhibit the operation of the pressure switch or pump.

We also recommend that the unit is inspected at least every six months and all movable parts checked for function by either an Pump Technical Services engineer or another suitably qualified professional.

8.0 General Health and Safety Guidelines

Please pay attention to the following regulations when installing the pump(s) or ask your qualified electrician/distributor.

Safety Precautions

In order to minimise the risk of accidents in connection with the service and installation work the following rules should be followed;

- Never work alone. Use a lifting harness, safety line and respirator as required. Do not ignore the risk of drowning.

- Make sure there are no poisonous gases within the work area.
- Check the explosion risk before welding or using electric hand tools.
- Do not ignore health hazards. Observe strict cleanliness.
- Bear in mind the risk of electrical accidents.
- Make sure that the lifting equipment is in good condition.
- Provide a suitable barrier around your work area, e.g. guard rail.
- Make sure you have a clear path of retreat
- Use a safety helmet, safety goggles and protective shoes.
- All personnel who work with sewage systems must be vaccinated against diseases to which they may be exposed.
- A first aid kit must be close to hand.
- Note that special rules apply to installations in an explosive atmosphere.

Electrical Connections

- Qualified and authorised electricians should only do the following works.
- Pump Technical Services Ltd disclaims all responsibility for work done by untrained or/and unauthorised personnel.
- Heed operating voltage (see name plate and additional labels).
- Take out the main fuses to isolate the mains supply from the control unit before repairs or any other works and ensure it cannot be energised again.
- If the pump is equipped with an automatic level control, there is a risk of a sudden restart.
- Before starting check the efficiency of the protective arrangements of the pump and the monitoring equipment. Failure to heed this warning may cause a lethal accident.
- Do not put the lead ends into water! Irruption of water may cause malfunctions.
- If persons are likely to come into physical contact with the pump or pumped media, the earthed (grounded) socket must have an additional connection to an earth (ground) fault protection device (G F 1).
- Use the pump only in accordance to the data stated on the pump plate respectively.

Special rules apply to installations in explosive atmosphere. Intrinsically safe circuits (Exi) are normally required for the automatic level control system by level regulators.

- Connections only to a mains supply installed in accordance to the local regulations. For fusing of d.o.l. starting pumps use only 10A slow fuses or automatic circuit breakers with C or D characteristics. This is because the motor's nominal voltage is measured at the terminal board of the pump; please consider the voltage drop of long supply cables.
- The motors of the three-phase AC pumps must be protected by a suitable overcurrent release. Adjustment as follows;
 Direct start +10% of normal current
 Star-delta start (nominal current x 0.58) + 10%
 If the protective arrangement has triggered, eliminate the trouble.
- Replace the cable if the cable jacket is damaged. Do not pinch the cable or pull it around sharp bends.
- Always install the control unit in a dry and well-ventilated room above the backpressure level. Never install the control unit within the sump.

Earthing

For safety reasons, the earth conductor should be approximately 50mm (2') longer than the phase conductors. If the motor cable is jerked loose by mistake, the earth conductor should be the last conductor to come loose from the first terminal. This applies to both ends of the cable. Ensure the correct earthing of the pump and control unit.



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Installation Guidelines for Powerflush Motor Assembly

IMPORTANT:- ENSURE THAT THE POWER SUPPLY TO THE UNIT IS TURNED OFF AND MEASURES ARE TAKEN TO PREVENT THE POWER SUPPLY BEING ACCIDENTALLY TURNED BACK ON (i.e. remove fuse from plug or fused spur) WHILST SERVICING THE POWERFLUSH.

Removal of Existing Motor

Firstly, empty the Powerflush tank as much as possible to reduce the chance of the electrics getting wet.

Remove the six screws on top of the control assembly (white container on the right hand side of the unit) and remove the lid. **IMPORTANT:-** Please ensure that the circuit board does not get wet whilst the lid is removed for servicing.

Once the lid to the control assembly has been removed you should be able to see the pump and power cable connector strip and the earth terminal block. The connector block is marked as follows.

- N – Neutral core from power cable**
- L – Live core from power cable**
- H – Blue core from pump**
- W – White core from pump**
- R – Red core from pump**

There is an earth terminal block above and to the left of the main connector strip that has two connections, one is the Earth (green/yellow core) from the power cable, the other is the Earth from the pump.

Disconnect the cores from the pump, (Red, White, Blue and Earth) and loosen the jubilee clip connecting the pump to the outside of the circuit board casing. Now pull the wires through the casing carefully and replace the lid on the circuit board casing to prevent any water getting into the circuitry when removing the pump.

Now you must lift the pump out of the chamber by pulling the rubber elbow at the bottom of the pump out of the centre of the casing and carefully lifting the pump ensuring that the rubber mountings underneath the pump are kept in place.

Installation of the New Motor

Place the new motor in the chamber ensuring that the rubber mountings are in position underneath the pump and at the top of the pump. Now push the rubber elbow from the pump into the discharge hole in the centre of the casing ensuring that the pump is seated properly.

Remove the lid from the plastic of the control circuitry and push the wires from the pump through. Reconnect the wires to appropriate terminal blocks on the circuit board as described above and replace the lid on the control board casing.

Replace the plastic lid on top of the unit ensuring that the floatation prevention device is in position on top of the pump and the rubber seal in place around the lid.

Reconnect the power to the unit and switch on, the pump should then run for approximately 20 seconds and then switch off.

Perform a wet test by running the sink until the pump operates and check to see if it has cleared the chamber. Repeat the wet test until you are confident the pump is working as it should.

