

4<sup>th</sup> Aug 2010 Page 1

## WALLACE MAXIPUMPS MP3000, MP5000, MP6000 AND HYDROJETS HJ30P, HJ60, HJ100, HJ140 & HJ400 INSTALLATION AND MAINTENANCE INSTRUCTIONS

Please read and follow all these instructions carefully before proceeding with the installation, this will ensure many years of trouble free pump performance, and protect your warranty.

**Applications:** A Wallace MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400 automatic pressure system can supply house or garden.

MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400 provide a constant pressure at a constant flow.

MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400 operate from above or below ground rain water tanks, spear points or any other clean water source.

Suction lift capabilities of above pumps is as below provided they are installed to these instructions. MAXIPUMPS: - 3M, HJ30P:- 5M, HJ60, HJ100, HJ140 & HJ400:- 6M.

The MAXIPUMPS, HJ30P, HJ60, HJ100, HJ140 and HJ400 are suitable to supply outlets up to max 10 metres vertically above the pump, this is 4 domestic house storeys high, @ 2.5 metres each. For outlets that are to be higher, up to 20 metres contact Wallace Pumps.

There is a built in delivery non-return valve in the controller of every MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400.

### Wallace MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400 pressure system

From very small, to very large multi-level homes and gardens. The MAXIPUMP range will do 99% of all domestic water applications. The HJ30P, HJ60 & HJ100 are budget options for smaller dwellings. The HJ60, HJ100, HJ140 or HJ400 are better suited to shallow well applications.

For large Multi-Bathroom house or Multi-Outlet property or Life Style Block applications install Variable Speed Maxipump model MPVS-7000. Refer Wallace pumps.

**Pump Housing:** Warranty of this pump is void unless correctly housed and protected from heat, rain, flooding, and freezing etc. The housing should be weather and vermin proof, have a solid, dry base and be well vented so that motor heat can escape. In the event of a leak the water must be able to drain away from the pump and any property without causing damage.

**Pump Position:** The pump must be installed level, with the delivery vertically up, as close to the water source as possible, and must not be more than 6m vertically above the lowest level of the water source or 4m for the HJ30P.

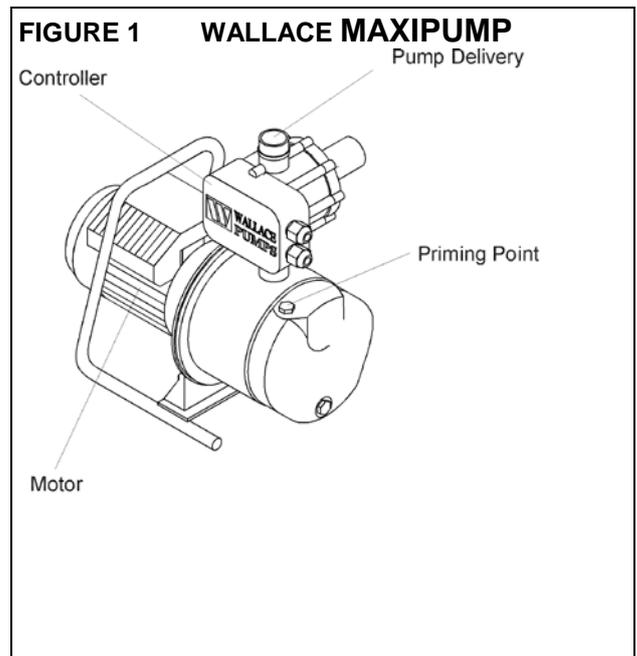
**Pipe connections:** Pipes should be supported and positioned so that the pump is not stressed by the pipe weight or misalignment. Use compression fittings in conjunction with pipe inserts on suction pipework.

Do not over tighten fittings. Ensure that thread tape is not "over the end of fittings and inside the pipework." Fittings with o-ring seals need only hand tightening. Do not use thread tape on o-ring sealed fittings.

**Water temperature:** maximum is 35°C.

**OPTIONAL Pressure Tanks:** The MAXIPUMPS, HJ30P, HJ60, HJ100, HJ140 OR HJ400 Pumps do not need a pressure tank. However a pressure tank may be fitted to the pump or in the pump delivery line to provide greater draw off before each pump start. The pressure tank must be charged with air. Check the air charge before operation as described later. The air charging valve is a car tyre type. For reliable operation the pressure tank must be installed under cover.

The pressure tank is to be rated to a minimum of 120 PSI working pressure & is to be installed anywhere in the delivery piping. Ensure it is adequately supported. Do not install directly on the pump



**Dry Run Protection:** Is incorporated into the controller. If the run dry protection is activated you will need to press the reset button. Before resetting eliminate the cause of the activation.

**Controller:** This is factory set and not adjustable. **OPENING THE CONTROLLER WILL INVALIDATE YOUR WARRANTY.**

The controller starts and stops the pump in response to the water usage.

In the event of a power cut the controller will automatically reset and re-start the pump when the power is restored.

**Filters:** Do not install any other filter in the pipework between the water source and pump. Only install filters on the pump delivery, be aware that filters greatly reduce pump delivery flow and pressure, and can need frequent servicing. If you want filtered drinking water, we suggest you only install a filter or filters in the individual dropper pipe that feeds the one tap for this service. Label the tap as being designated for this purpose.

**Piping General:** All sizes are expressed as internal diameter. ( ID )

All pipe threads must be sealed and tightened correctly to prevent leaks.

Never reduce the pipe sizes below those stated in these instructions.

Ensure that isolating valves are of a full bore design.

Use only Wallace foot valves for suction lift applications.

Ensure piping is adequately supported.

Ensure the delivery piping is rated to more than 6 bar or 60 metres or 85 psi working pressure.

The delivery pipe should be flexible at least 1 metre from the pump, then rigid pipe such as copper can be used.

**Suction Piping:** There are two types of suction installation.

**IN ALL CASES a one piece MDPE suction pipe should be used – same size as suction port ID to 6 metre lengths, for lengths of 6 to 20 metres use pipe of one size larger ID. Minimum pressure rating must be PN9. DO NOT USE PVC PIPE. ALL SUCTION FITTINGS MUST BE COMPRESSION TYPE AND MUST BE USED WITH PIPE INSERTS. DO NOT USE PUSH FIT TYPE FITTINGS ON SUCTION PIPING. Take care to minimise joints. The suction line must be airtight. IF LDPE pipe is used then Hansen type fittings with internal pipe support must be used.**

**Flooded Suction Piping:** Where the water source is always above the pump level. (Refer to figure 2)

The pipe connection in the water tank must be at least 50 mm above the bottom of the tank.

Install a full bore isolating ball valve within 200 mm of the tank to the same size as the selected pipe.

The pipe should be level or can go below then rise to the pump. **Pipes must not rise from the source and then fall to the pump.** Where possible the pipe should be buried. Ensure valves are accessible for servicing.

The maximum suction pressure is not to exceed 10 metres ( 100 kPa )

**Suction Lift Piping:** The water source is below the pump level.(Refer to figure 3)

**FOLLOW THESE INSTRUCTIONS PRECISELY**

A Wallace foot valve must be used. This has to be ordered if required. The foot valve must be fully submerged, at all times.

The one piece suction pipe must rise continuously from the foot valve to pump. Where the tank is partially buried a connection through the tank at ground level will be needed to achieve this. Minimise the number of bends.

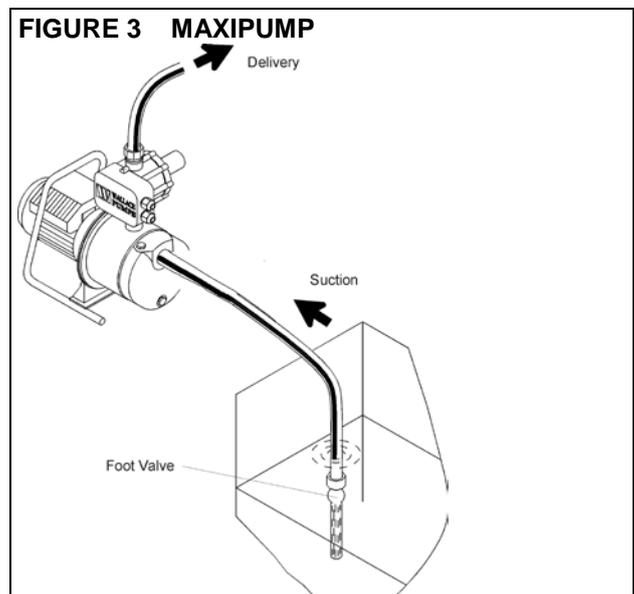
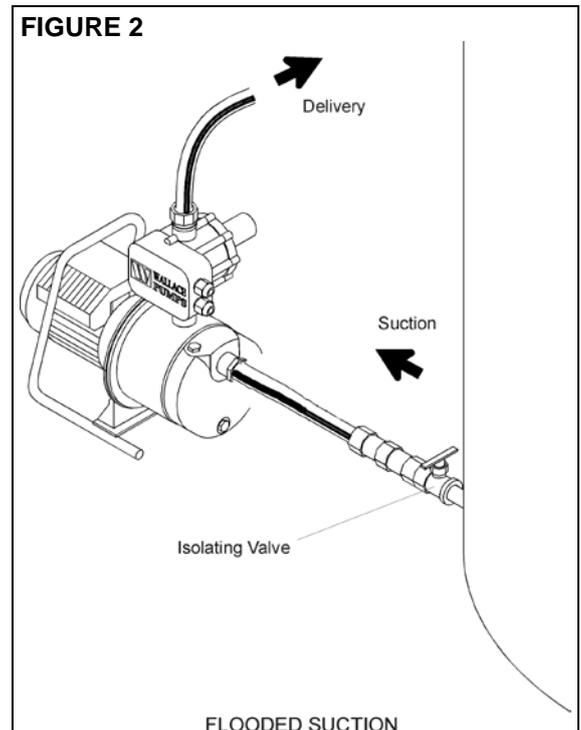
Maximum Suction Lifts:

3 m – MP3000, MP5000

5 m – HJ30P

6 m – HJ60, HJ100, HJ140, HJ400

**Town Supply Suction:** Refer to figure 4, and also refer to



flooded suction piping. These pumps must not be directly connected to a pressurised suction. For boosting town supply install a 200 litre tank ( or larger if needed ) with a full flow ball cock from the town supply. Connect the pump suction pipe to the tank as previously described.

**Pump Delivery Piping:** Please refer to figure 5 which details the correct house plumbing layout. Recommended delivery pipe sizes from the pump to a single house are listed as follows for the required lengths.  
0 to 10 metres use 25 mm ID. 10 to 50 metres use 32 mm ID. 50m to 200 metres use 40 mm ID.

Note all piping must be rated to withstand the output pressure of the pump.

We recommend you install an easily accessible full bore isolating ball valve after the pump. This should be positioned before any take offs in the delivery piping after the pump. The valve is to be the same bore size as the selected pipe. The highest delivery point must not be more than 10 m above the pump.

**Priming:** Ensure power is off to the pump.

Flooded suction Install the suction pipework. Open the tank isolating valve until water comes out and the pipe is flushed clean, close valve. Fit pump and delivery pipework to pump, open valve and release hexagonal priming / vent plug next to the suction pipe connection until all the air has been purged out of the pump and water is flowing freely, replace plug.

Suction lift Install the suction pipework. Fill the pump with water through suction pipe connection. Fill the suction pipe with water and connect to the pump. Fit delivery pipework. Remove the hexagonal priming / vent plug next to the pump delivery, pour water into the pump via the priming hole until full, wait for one minute and ensure the water level does not drop which would indicate a leak that needs to be rectified. Then replace priming / vent plug.

Flooded and suction lift Turn pump on and allow pump to operate till primed and all air is flushed out of suction pipe and pump. This is achieved by starting the pump with all outlets closed, gradually open one outlet until fully open and a good flow is observed. Never control flow with the suction valve, leave it fully open. Do not run the pump with all outlets closed for more than five minutes. If priming a long or difficult suction pipe the pump may stop and indicate a fault, reprime with water, then press the reset button to restart.

**Power supply:** Ensure the supply voltage is 230 volts, avoid long undersized extension leads.

We recommend the supply is protected by an earth leakage circuit breaker. **If you have purchased a Variable Speed Maxipump model MPVS-7000, please be aware the run current can sometimes exceed 10.0 A and the pump should be installed on a 16 A or larger circuit.**

#### **INSTALLATION SUMMARY AND CHECK LIST**

1. Read all of the instructions before proceeding with the installation.
2. Check and set ( if applicable ) the pressure tank air charge pressure is 200 kPa (30PSI).
3. Prepare the pump housing - ensure it will be easy to access the pump and tank for future servicing.
4. Prime and install the pump in the housing.
5. Install the suction pipework.
6. Prime the pump, suction lift - check for leaks.
7. Install the delivery pipework.
8. Plug into a 10 amp fused and switched power supply (16 amps for VSD Pump MPVS-7000).
9. Switch on the pump and check for:-
  - a) **Good delivery flow, run with three taps fully open for 10 seconds per metre of suction pipe to purge all air.**
  - b) That the pump comes up to pressure and switches off within 10 seconds of the last outlet being closed. And does not start with all taps closed, wait for three minutes to ensure this is correct.
  - c) Any leaks, remember to check the hot water cylinder over flow pipe, toilet flush valve, foot valve and pump non-return valve.

#### **WARNING**

We do not recommend that your house is connected to both your water tank and pump, and the town water supply.

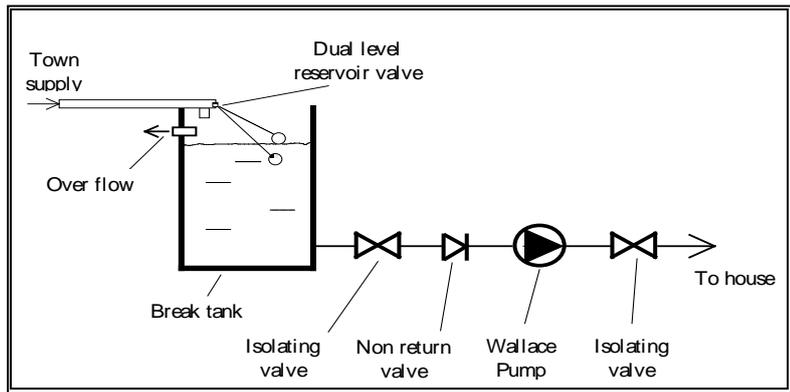
If you choose to do this the NZ building code requires appropriate backflow prevention measures must be taken. In addition to ensure that the town supply pressure is not applied to the pump and possibly cause over pressure related damage to the pump or pressure tank, two Wallace type 601 non-return valves must be installed on the pump delivery before the town connection is made. Always check with your Territorial Authority for their requirements before connecting the pump.

Closing a valve does not constitute disconnection, the pipes must be disconnected and apart.

We recommend that you connect your water tank and pump to the house permanently and connect as shown in figure 4.

The overflow must be 100 mm below the outlet of the reservoir valve to provide an air gap between the water and the reservoir valve. If the break tank collects rainwater, to optimise the rainwater collection we recommend that the town supply is only used to maintain a minimum level in the tank leaving room for the rainwater.

**FIGURE 4** Recommended installation for pressure boosting from town or a pressurised supply.



### OPTIONAL PRESSURE TANK.

If you are operating the pump at low flows (less than 0.4 L/min – MP3000, MP5000, HJ30P, HJ60, HJ100, HJ400, HJ140) we recommend a pressure tank be installed. Install the tank on a tee of from the discharge pipe before the first tap. **Tank air charge pressure:** The flexible membrane inside the tank separates the air and water within the tank and so prevents the water absorbing the air (water logging). The tank charge pressure is **200 kPa (30 psi)**.

The tank air charge pressure must be checked with the water pressure relieved, follow the procedure carefully.

An initial easy check you can do is; After the pump has stopped, open a tap, you should get at least a cup of water before the pump starts, if you do the tank pressure is OK and does not need checking.

### Checking and replenishing the tank air charge. Procedure:-

Every 3 months the tank air charge pressure must be checked, and if necessary replenished as follows:-

1. Release all water pressure from the tank by; switching off the power to the pump, and turn on any tap to release water pressure from the system. In flooded suction situations close the tank isolating valve.
2. Apply a car tyre or similar type pressure gauge to the air valve on the tank. The tank air charge pressure reading should be 200 kPa (30 psi).
3. If necessary; drain, or replenish tank air charge pressure using a suitable car tyre pump or compressor to the correct pressure. DO NOT over pressurise the tank.
4. Close the tap, open the tank isolating valve, switch on the pump.

### SAFETY

Turn power off and pull out the plug at the wall, before attempting any servicing.

Keep hands clear of the pump whilst it is operating.

Note that the pump may start without warning due to water demand or the internal thermal overload resetting.

Do not charge the pressure tank above 200 kPa.

Do not run the pump dry.

Read and follow all instructions.

### MAXIPUMPS, HJ30P, HJ60, HJ100, HJ140 & HJ400 CONTROLLER

**The controller may have three LED lights** (certain models) which when lit, indicate the following functions:-

POWER ON ( green colour )	There is power to the controller
PUMP ON ( yellow colour )	The pump is operating
FAILURE ( red colour )	There is a system or pump fault.

System faults may include the pump is not fully primed, there has been a run dry, there is a suction or delivery pipe restriction.

When the pump is first turned on it may run for approximately 10 seconds and turn off, the failure LED will be lit. This indicates that the pump is not fully primed and has been stopped by the controller as it has sensed a run dry condition, repeat priming procedure, press the reset button to reset the controller. Repeat until the priming is completed and pump runs and stops normally. The controller is not serviceable, it is protected by an anti tamper seal, if broken the warranty is invalidated. As the motor and controller are electrical devices they may be damaged in the event of a power failure or lightning strike, if this is a risk for your installation we recommend that a suitable protection device be installed in the power supply to the pump.

**If the controller has only a restart button and will not work, check the fault finding instructions.**

RESET / RESTART button resets the pump after it has tripped due a fault such as loss of water supply. After the fault has been rectified press the reset / restart button to start the pump. Do not press the reset button and

operate the pump for more than two times without checking and rectifying the cause of the trip. Refer to fault finding later in these instructions.

### **FAULT FINDING:**

**Note: - Not all pumps have a pressure tank. If not, ignore pressure tank points.**

#### **Priming trouble: ( Red failure light if applicable, is lit )**

DO NOT RUN THE PUMP DRY.

Do not press reset button more than twice without checking pump has water in it and remedying the fault.

1. Air leak in suction pipe system.
2. Foot valve not fully submerged. Or no water in the supply.
3. Suction lift too high, check pump level above the water supply to the pump.
4. Foot or check valve leaking, or jammed.
5. Suction valve is blocked, closed, leaking air or faulty.

#### **Motor switching on and off when no water appears to be being used:**

1. Leak / s in suction and / or delivery pipework.
2. Foot or check valve leaking, or not installed, or installed in the wrong place.
3. ( IF FITTED ) Pressure tank air charge pressure incorrect, too high or low. Refer to previous section.
4. Either the hot water cylinder pressure reducing valve and / or the cold water expansion valve and / or the TPR valve are leaking or incorrectly set.
5. Toilet cistern flush valve leaking.
6. Non return valve in the pump Presscontrol leaking.

#### **Motor switching on and off frequently when water is being used:**

1. Blockage or restriction in the outlet, particularly the toilet cistern valve, or ball cock in header tanks.

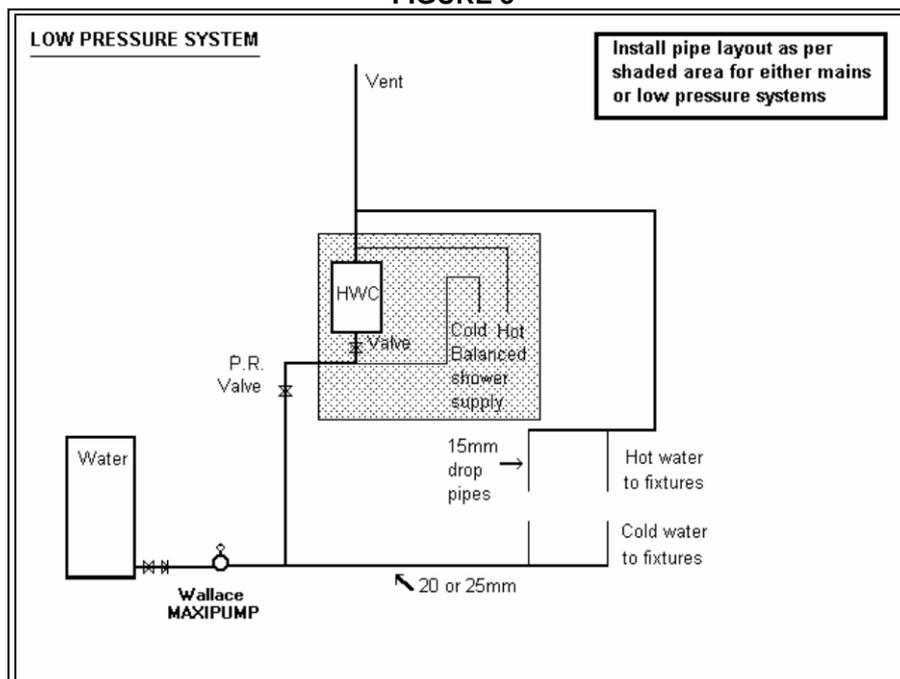
#### **Pump not switching off or taking more than 20 seconds to switch off after all outlets closed:**

1. Pressure tank air charge pressure incorrect, too high or too low, should be 200 kPa ( 30 psi ). Refer above.
2. Drop in tank / bore / well suction water level, or no water in water tank.
3. Leak / s in suction and / or delivery pipework and / or controller non-return valve.
4. Blockage or debris in the presscontrol. Fit a suction strainer supplied to prevent this.

#### **Pump will not start or run:**

1. Check controller " POWER ON " LED is lit if applicable, or check power supply at the power point with another appliance you know works eg: hair drier.
2. Motor thermal cut out has tripped. Switch power off and eliminate cause of trip, wait for cut out to automatically reset when motor cools, this can take up to 40 minutes.
3. One or more outlets is more than 13 metres above the pump. Call Wallace Pumps.
4. Controller has activated due to run dry. Restore water supply or system fault and prime pump, press reset button to reset the controller. Refer to priming above.
5. Controller has a blocked port or is faulty, refer to controller section earlier.
6. The run dry "failure" protection has activated and prevented the pump from operating. Find cause and press reset button. See 7 below.
7. The pump is not turned on at the motor terminal box, some models have a switch on the terminal box.
8. The pump is jammed. Turn off power to pump, check pump is free to rotate by turning motor fan. If jammed call Wallace Pumps service agent. Debris is the most likely cause.

**FIGURE 5**



**SHOWERS : Pressure fluctuation in a shower need not be a problem!**

An avoidable complaint about pump systems is the difficulty of achieving even water flow and temperature in showers. Our experience is that this is usually due to under size piping, incorrect pipe layout or both.

**MAINS PRESSURE or LOW PRESSURE**

Wallace MAXIPUMP, HJ30P, HJ60, HJ100, HJ140 OR HJ400 pressure systems are suitable for either system.

**GENERAL**

Plumbing must be in accordance with the Building Code and any relevant manufacturer's requirements.

Whichever system you choose the following guidelines will help you to achieve a very satisfactory result

**PIPING**

All pipe and valve sizes are stated as minimum internal diameter.

The suction pipe and valving between the water supply and pump must be as specified.

The delivery pipe from the pump to house must be 25 mm or bigger as specified.

Bigger pipe sizes are better than smaller, because they provide lower water velocities, which are quieter and have a consequently lower pressure loss, which means more flow and pressure at taps and showers.

All house piping must be 20 mm minimum except for individual 15 mm droppers to each individual fixture, the 15 mm droppers must not exceed 1.0m in length, and dropper lengths over 1.0m must be 20 mm pipe.

Clip pipes carefully and silicone around them where they pass through walls etc. This will help prevent noise and vibration.

The system diagram above gives equal hot and cold water pressures to shower at all times.

Which ever system you choose, low or mains pressure, separate shower hot and cold water pipes must be the first run from each side of the hot water cylinder to the shower mixer with no branches to any other fixture as shown in the above diagram. Also refer to the hot water cylinder manufacturers piping instructions.

It is unfortunate that people try to save a small amount of money on their piping, because under size piping will cause; excessive pressure loss and poor flows, along with pressure and temperature surges in showers. Correct piping sizes and layout will eliminate these problems, and give you the best performance from your pump.

A solution to an existing problem that can sometimes be employed is to run a 25 mm pipe around the house, and have two 20 mm connections from this 25 mm pipe into the house piping at points nearest to, and furthest from the pump. This solution can be applied to any system, and is especially good for large single level homes where piping lengths through the house can be very long.

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