Orange

PUMPS

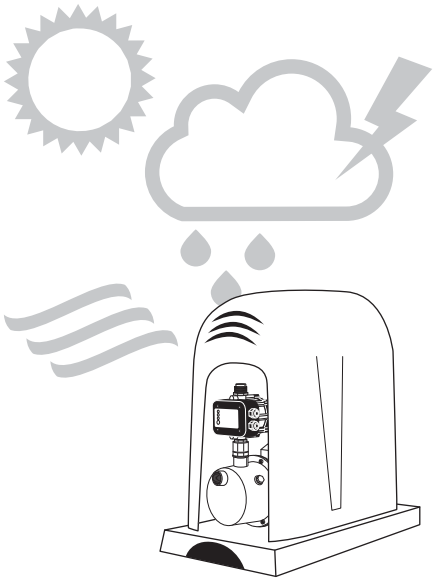
Installation Instructions

Pumps & Pressure Systems
Farm & Irrigation Pumps

Australian Owned & Operated
Since 1996

Orange Pumps Pty Ltd 25 Lionel Road, Mount Waverley VIC 3149, Australia

Pump Housing



The Pump System requires protection against the damaging effects of rain, frost, wind carrying dust and direct sun light causing heat.

Good ventilation is necessary in the housing to assist the motor fan to cool the motor.

The housing base should be able to drain water accumulated from leaking pipes, rain or flooding.

Vermin & insect infestation can damage the motor, pump & switch so inspect the pump periodically and implement a suitable pest control plan.

Electrical Supply

For "Plug & Play" models ensure the plug is pushed in tight past the O-ring seal.

In areas prone to electrical power surges, voltage spikes or lightning strikes a surge protection device is recommended.

Ensure the pump motor is connected to an approved electrical outlet socket.

If an electrical extension cord is required choose one with a suitable current rating. An undersized electrical cable can cause considerable voltage drop, raising the current draw and overheating the motor windings.

230 Volt models are supplied with thermal overload protection in the motor. Constant tripping of the thermal indicates the motor is being overloaded. Possible causes range from low volts, excessive ambient temperature, lock rotor, or partially blocked impeller. The cause should be identified to prevent damage.

Important: 415 Volt (3 phase) & 460 Volt (2 phase) models require thermal overload protection to be installed by a suitably qualified electrician. 415 Volt (3 phase) motors can be wired incorrectly so the shaft rotates in reverse. Start motor briefly and check shaft is spinning clockwise when viewed from the fan end.

Always disconnect the electrical power supply when servicing pump. The thermal overload may have switched pump off but could close the circuit without warning.

⚠ ELECTRICAL POWER SURGES, VOLTAGE SPIKES OR LIGHTNING STRIKES CAN DAMAGE THE MOTOR AND THE ELECTRICAL SWITCH AND VOID WARRANTY. IN SUCH AREAS A SURGE PROTECTION DEVICE IS RECOMMENDED.

Pump Suction

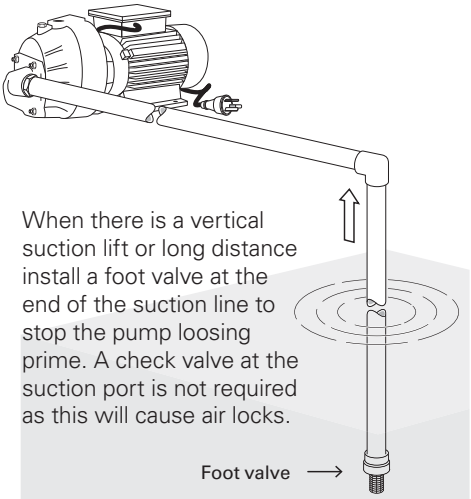
Pumps are much better at pushing water rather than sucking water so the position and installation of the pump is important.

The pump should be located as close to the water source as possible to increase performance. Reducing the number of elbows, joins and vertical lift will also increase efficiency.

The suction pipe should be no smaller than the inlet port size. On bigger pumps with longer suction lines a larger diameter pipe will reduce pipe friction and make the system more efficient.

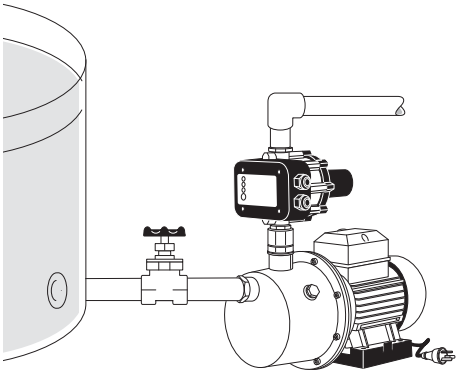
Pipe fittings require adequate sealant such as Teflon tape to prevent air from entering the suction line and the pump losing prime.

Pipes attached to the pump can be heavy with water causing stress on threads and welds. To prevent damage secure the pipes against external structures.



When there is a vertical suction lift or long distance install a foot valve at the end of the suction line to stop the pump loosing prime. A check valve at the suction port is not required as this will cause air locks.

For above ground tank systems, a gate valve at the tank is recommended so the water can be isolated when the pump is removed.



For flooded suctions when the water source is higher than the pump, a check valve should be installed at the suction port of pump to stop water flowing into the suction line when system turns off.
(See Shallow Well on page 5)

It is not necessary to have a check valve on PressMatic and MassControl systems as there is one built-in.

Install the suction pipe at a constant gradient to avoid undulating pipes which can have air pockets and cause loss of prime.

Long black suction pipes exposed to direct sunlight in warm climates can heat the water significantly to alter the pump performance.

A barrel union installed at the suction port is useful for removal of pump when servicing.

A filter placed on the suction pipe entry may be required to prevent leaves, debris, or other foreign matter from entering the pump.

Pump Discharge

Similar principals listed in "Pump Suction" section involving elbows, pipe length, vertical height and pipe diameter apply on the discharge side. These principals will reduce the dynamic head, lowering the operating pressure and making the system more efficient.

When connected to a mains hot water system, a check valve on the discharge line is required. This will prevent high pressure from water expansion flowing into the pump and causing damage.

On larger systems a gate valve at the discharge port is recommended to regulate the operating pressure. This is crucial for deep well applications. (See Deep Well on page 5)

On automatic systems with an electric switch the pump can cycle on and off frequently as the water draw off is low. A leaking tap, broken pipe or pipe threads not adequately sealed will cause a drop in pressure and the pump to turn on. A gate valve at the discharge port is recommended to isolate the switch from down-stream water leaks and help identify cycling issues.

A barrel union swivel connector is supplied with our SJ packaged unit systems. The O'ring and gasket design on the swivel connector ensures the switch to pump threads are well sealed. The swivel connector can rotate which facilitates installation in confined spaces. A locking pin can be removed to separate the connected ends making servicing easy.

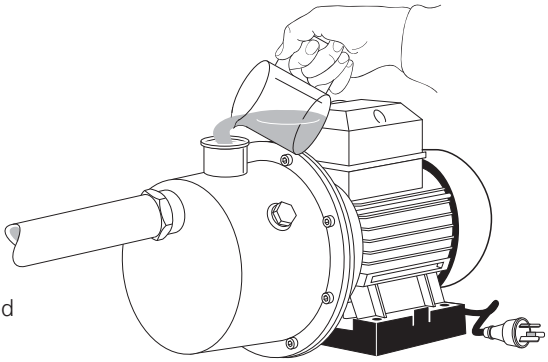
Pump Priming

Our standard pump models are designed for moving clean water free of chemicals, fibres, or abrasive material. Specific seals & O-rings can be fitted for pumping other solutions.

The pump will become damaged by excessive heat caused by friction if operated without water in the casing. Loss of prime protection is available.

On flooded suctions water can flow into the pump when the air bleed valve or discharge port is opened for air to escape.

Once "primed" turn on the electrical supply and open a discharge valve to check water flow. If a pressure gauge is installed check pump reaches top pressure.



To prime the pump water must be poured into the discharge port so that the casing and suction line is full. On long suction lines with wide diameter pipes a large volume of water will be required.

PressMatic & MassControl

Connect the power supply and turn on. Power on & Pump on lights will appear and the pump will operate for 15 seconds in start mode. A gate valve on the discharge port is recommended to identify intermittent starting. When gate valve is closed and pump no longer starts there must be a leak down stream.

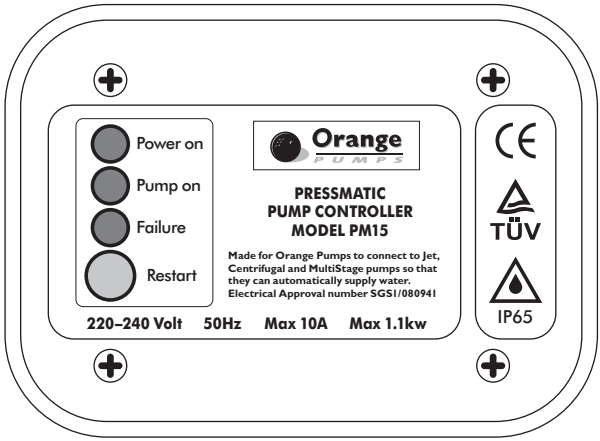
Light Functions

Power on: Electricity connected, pump in standby mode

Pump on: Drop in pressure, water required pump operating

Failure: Loss of prime, check water source

Restart: Button to restart pump after loss of prime (failure light on)



PressMatic	Cut in Pressure	Max static head	Weather resistant
PM10	10 metres	8 metres	IP65
PM15	15 metres	13 metres	IP65
PM20	20 metres	18 metres	IP65
MC22	22 metres	13 metres	IP65

⚠ THE PRESSMATIC SWITCH CANNOT BE POWERED BY A PETROL OR DIESEL GENERATOR. IF SUCH A POWER SOURCE IS USED WARRANTY IS VOID.

⚠ EXCESSIVE SWITCHING ON AND OFF DUE TO LEAKING PIPES, TAP FITTINGS OR CISTERN WILL DAMAGE THE RELAY SWITCH AND VOID WARRANTY.

⚠ ELECTRICAL POWER SURGES, VOLTAGE SPIKES OR LIGHTNING STRIKES CAN DAMAGE THE ELECTRICAL SWITCH AND VOID WARRANTY. IN SUCH AREAS A SURGE PROTECTION DEVICE IS RECOMMENDED.

✔ Orange Pumps PressMatic switches are Australian Electrical Compliant to AS/NZS 3100 as per test report SGS1/080941. This standard tests for electrical & flame proof safety suitability.

Pump Deep Well

Detailed information specific to Deep Well installations are supplied with the Deep Well injector kit.

1. Ensure suction & supply pipes down the bore are fitted correctly to inlet ports and injector.

2. Ensure pump maintains a minimum operating pressure specific to models (See page 19 of trade catalogue). A gate valve or automatic control valve should be fitted at discharge port to maintain operating pressure.

3. Install a foot-valve at the end of suction line. Do not put a check valve at the suction port as air locks in the suction line may occur.

Mechanical Systems

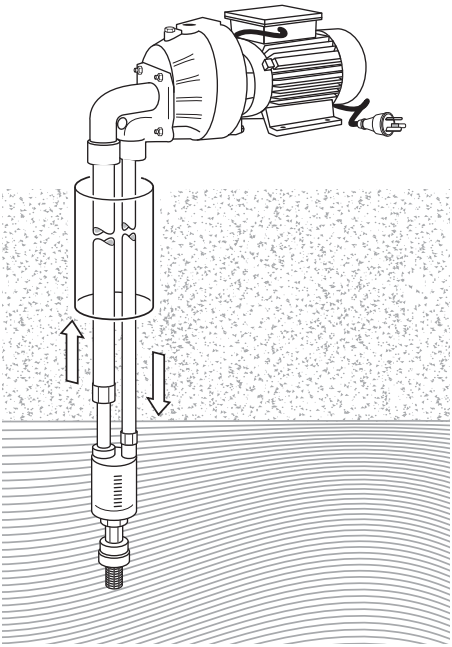
Detailed information specific to Mechanical Switch Systems are supplied with the water kits.

1. Check valve is required at suction port (except for Deep Well installations).

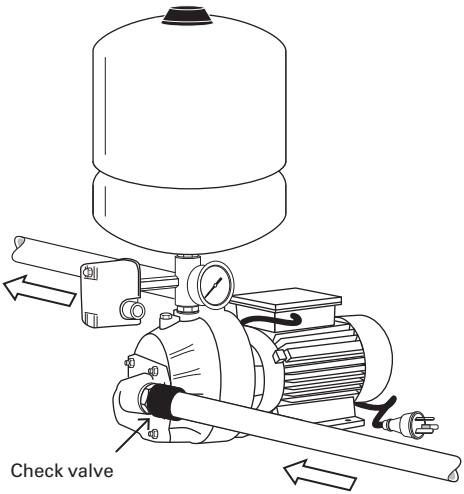
2. Pressure switch is factory set but may have to be adjusted depending upon site.

3. Air in pressure tank should have about 10% less pressure than the cut in pressure. Typically switches are set at 20-40 psi so air in tank should be 18 psi.

Deep Well Pump



Shallow Well Pump



Trouble Shooting

Fault	Possible Cause	Solution
Motor does not start	A) Power not properly connected B) Supply voltage too low C) Motor overload tripped or damaged D) Water supply empty.	A) Check plug is pushed in B) Electrician to check line volts C) Check impeller not blocked, rotor free to rotate and voltage supply D) Water required, loss of prime protection.
Motor starts but does not pump	A) Water source empty or water level low B) Casing and suction pipe not filled with water C) Pump internals damaged D) Suction pipe not submerged or has air leak E) Motor hums & rotor does not turn.	A) Fill water source B) Prime pump C) Replace internal parts D) Ensure suction pipes are submerged, allow pump to reach top pressure and observe pressure drop E) Check capacitor.
Pump starts and stops frequently	A) Leaking pipes, tap washer or cistern B) Check valve, foot valve held open by foreign matter.	A) Close gate valve at discharge port if pump stops there is a leak down stream: repair B) Close all outlets and observe if pressure drops.
Pump delivers insufficient volume	A) Pump internals damaged B) Line voltage down C) Blocked check or foot valve D) 3 phase motor rotating wrong way.	A) Replace internal parts B) Electrician to check line volts C) Inspect check and foot valve D) From back shaft should spin clockwise, change wiring.
Pump is noisy and water flow is down	A) Cavitation B) Internals blocked.	A) Increase the operating pressure by closing a gate valve at the discharge port B) Inspect internals for debris.

IN ACCORDANCE WITH AS3350.2.41

WE ARE OBLIGED TO INFORM YOU THAT THIS PUMP IS NOT TO BE USED BY CHILDREN OR INFIRM PERSONS AND MUST NOT BE USED AS A TOY BY CHILDREN.

Warranty Statement

1. This is an express warranty provided by Orange Pumps Pty Ltd ACN 18 009 789 155 (**Company**) of 25 Lionel Road, Mount Waverley Victoria, Australia 3149, phone: +61(3) 9426 3400 and email: enquiries@orangepumps.com The benefits that you receive under this warranty are in addition to other rights and remedies that you have under law in relation to the Orange Pump product (**Product**) supplied to you. Specifically, our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

2. The Company warrants, in accordance with and subject to the provisions of this warranty, that the Product will be free from defects in material and workmanship for a period of 12 months or 1,000 hours operation (which ever occurs first) (or other period specified in writing in any extended warranty product offered by the Company), from the date of purchase of new Products to the original purchaser at retail level, when used in the original installation.

3. The warranty is void if the Product is:

   (1) not installed, housed and operated in accordance with the instructions supplied with the Product;

   (2) used for a purpose other than for which it was designed;

   (3) used for unreasonable periods, or under unreasonable conditions, or for periods or in conditions not intended by the Company;

   (4) operated on voltages or frequencies other than indicated on the rating plate;

   (5) modified or adjusted without the Company's prior written consent;

   (6) serviced, modified or adjusted by a person not trained in the servicing, modification or adjustment of the Product;

   (7) repaired using non-genuine spare parts or components (being parts or components not originally manufactured or imported into Australia by the Company);

   (8) misused; not serviced at least annually, or as otherwise reasonably required for the proper operation of the Product (taking into account its workload and surroundings); subject to abuse; or not installed in accordance with any guidance or instructions issued by the Company;

   (9) run in a dry condition, operated at high temperatures or outside its technical specifications.

3.2. This warranty does not cover loss or damage resulting from, or issues arising as a result of:

   (1) the installation of the Product (i.e. the warranty applies to defects in workmanship in the Product only);

   (2) fair wear and tear;

   (3) electrical mains power supply issues; storms (including dust, thunder and power); flood; or infestation by insects or vermin;

   (4) exposure to corrosive conditions;

   (5) abrasion or corrosion resulting from the fluid pumped by the Product;

   (6) accident or negligence (other than that of the Company);

   (7) an incorrectly set voltage regulator; or

   (8) any other force majure.

4. In order to make a claim under this warranty, you must take the Product together with proof of purchase, model and serial number, to the place of purchase or your local Orange Pumps authorised dealer. A list of authorised dealers can be found at www.orangepumps.com.au You must also provide your name, address and phone number.

5. In respect of all valid warranty claims, the Company will repair the breakdown or failure, and replace any defective part, free of charge. However, you are responsible for all costs associated with making a claim, including costs associated with the transportation of the Product to and from your local dealer and to and from the Company, and de-installation and reinstallation. If the Company, in its absolute discretion, agrees to inspect a Product that is subject to a warranty claim by you onsite (or authorises one of its dealers to do so), you will be required to pay a labour and assessment charge of at least $50/hour (including travel time) if the Company determines that the issue is not covered by this warranty.

6. Other than expressly set out in this warranty, and the warranties that are set out in the Australian Consumer Law (schedule 2 of the *Competition and Consumer Act 2010* (Cth) (and any other law), the Company:

   (1) excludes all other warranties, guarantees and remedied with regard to the Products (including implied warranties and guarantees);

   (2) has no liability (including liability in negligence and for consequential loss or damage) to you or any other person for any loss or damage (consequential or otherwise) however suffered or incurred: in relation to the Product; or caused by or resulting directly or indirectly from the Product or from any failure, breakdown, defect or deficiency of any nature in the Product; and

   (3) is not liable to make any payment in connection with this warranty that exceeds the total price paid by you for the relevant Product.