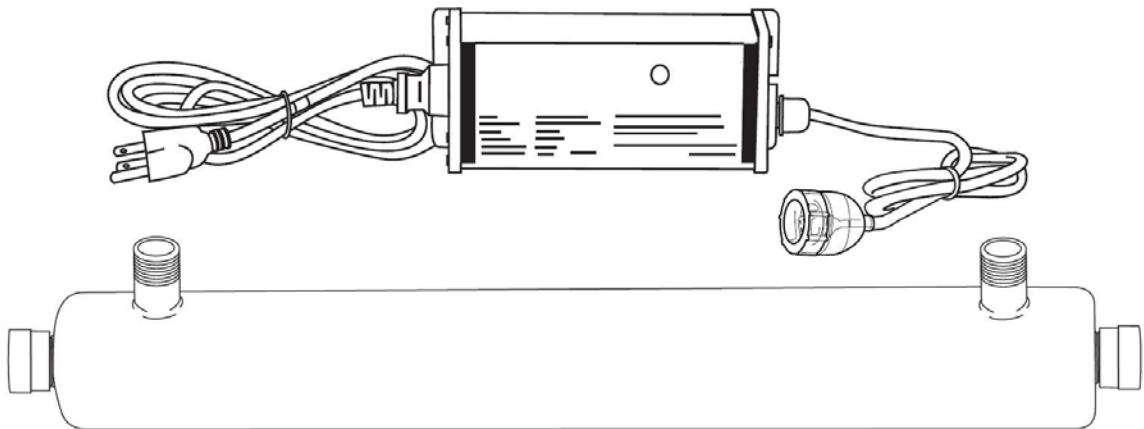




Ultraviolet (UV) Water Treatment System Installation Instructions & Owner's Manual



12GPUV-55W, 24GPMV-110W, 32GPMV-165W, 48GPMV-220W

CAUTION: Before using UV System, read this manual and follow all safety rules and operating instructions.

Congratulations on purchasing a Trevoli UV Water Treatment System. You have taken the first step in ensuring your water is safe for yourself and your family. This system has been designed to disinfect your water source using UV technology, which has been proven to kill bacteria and viruses including E. coli, Salmonella, Legionella as well as cysts such as Giardia lamblia and Cryptosporidium. The Trevoli UV system is a natural non-chemical, environmentally friendly safe technique for water disinfection treatment that will give you years of peace of mind.

Safety Instructions:



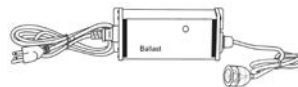
The installation of this system must be in accordance with all provincial/state and/or local laws and regulations regarding plumbing and electrical services. Installation by a certified plumber is recommended. Always comply with the following warnings and safety instructions, to prevent bodily harm, injury or property damage.



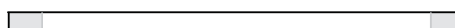
- Do not attempt to install, operate, clean or perform routine maintenance on your Trevoli UV system unless you have first read and understand all of the warnings and safety instructions that are contained in this manual and on the labels that are affixed to the system.
- Do not attempt to operate the Trevoli UV system if it has been visibly damaged, (e.g., due to shipping) or if it may have sustained damage, (e.g., if the unit has been dropped). To prevent faulty operation of the system, inspect it carefully to ensure it is free of physical damage before using.
- Never start your Trevoli UV system, (e.g., after the initial installation) before confirming that the exterior is dry and that there are no visible leaks.
- The Trevoli UV system is designed for indoor applications only and should not be exposed to outdoor elements.
- Always install and operate the unit in an environment where both the air and water temperatures will normally range between 2°C and 40°C.
- ***DANGER: The lamp inside the unit emits ultraviolet light that can cause permanent damage to skin and eyes. Never look at the lamps when unit is operating.***
- Never attempt to operate your Trevoli UV system unless it has first been properly grounded, to avoid creating an electric shock hazard.
- To prevent an electric shock, do not plug the Trevoli UV system into any socket that has not been equipped with a Residual-Current Device (RCD).
- Always unplug the power cord before attempting to install, clean or perform other routine maintenance on the unit.
- Always stop the inlet water flow before performing any maintenance on the unit.
- Do not attempt to service this unit unless you are an accredited service technician, as personal injury could result and/or system operation could be detrimentally affected.
- Never operate this unit in an oxygen-rich environment, or within 2 meters of any oxygen source.
- If temperatures should fall below freezing (0°C), drain all water from the unit, drain and disconnect all plumbing lines, and cap the inlet and outlet ports.

Product Overview:

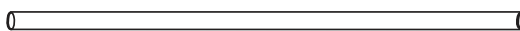
The Trevoli Ultraviolet (UV) Water Treatment System has been engineered to rigid standards, and has been quality inspected at the factory prior to packaging. Please review this manual in its entirety for a detailed system explanation, and ensure that the following components accompany this system: To ensure system performance, all replacement components should be purchased directly from an authorized dealer or directly from The Pump Warehouse (www.pumpwarehouse.co.nz). The use of components purchased from other sources will void the warranty, and will potentially cause the system to function in a lesser capacity than intended.



Ballast (includes lamp connector)



UV Lamp



Quartz Sleeve



Retaining Nut



Quartz Sleeve Sealing O-Ring



Stainless Steel UV Reaction Chamber



- ***Lamps must be replaced after 12 months of operation to ensure proper disinfection of your water***
- ***Clean Quartz Sleeve frequently for optimum performance***



A minimum 5 μ nominal pre-filter is recommended upstream (before) the UV system installation point. As UV system efficiencies are dictated by penetration of the UV light through the water column, particulate matter within the water column could decrease the disinfection capacity, and potentially create a harmful condition (filtration systems sold separately).

Water Quality Parameters:

Water quality will adversely affect the performance of your Trevoli UV disinfection system, and the following levels should be utilized as a guideline for pre-treatment requirements of the influent water supply prior to UV treatment:

Iron	Total iron count must be less than 0.3 ppm (0.3 mg/L)
Turbidity	Count must be less than 1 NTU
Tannins	Count must be less than 0.1 ppm (0.1 mg/L)
Manganese	Count must be less than 0.05 ppm (0.05 mg/L)
Hardness	Count must be less than 120 ppm (7 grains per gallon)
%UVT (transmittance)	Must be greater than 75%

If you are using untreated surface water or untreated groundwater as your source of supply, the suitability of the water supply for potable applications must be confirmed by the provincial / state and/or local health agency that has jurisdiction.

If the test results indicate that: (1) any of the above contaminant levels are being exceeded, or (2) any prevailing drinking water health standards are not being met, additional pre-treatment options must be installed that will eliminate all contaminants posing health risks. Non-municipal water should be tested on an ongoing basis to ensure treatment efficiency.

About Your System:

Specifications:

Model Number:		Standard Output			
		12GPUV-55W	24GPUV-110W	36GPUV-165W	42GPUV-220W
Flow Rate (LPM) ⁽¹⁾	40 mJ/cm ² ⁽²⁾	33	66	99	132
	30 mJ/cm ² ⁽²⁾	45	90	135	180
	16 mJ/cm ² ⁽²⁾	84	168	252	336
Dimensions	Ballast	115 x 65 x 55 mm			
	Chamber Diameter	65mm	110mm	300mm	300mm
	Chamber Length	910mm	910mm	910mm	910mm
I / O Port Size		20mm BSP	25mm BSP	40mm BSP	40mm BSP
System Maximum Operating Pressure		125psi			
Electrical	Voltage`	230V, 50Hz			
	Power Consumption (W)	55	110	165	220
	Lamp Watts (W)	55	55	55	55
Chamber Material		304SS			

⁽¹⁾ 95% UVTEOLL

⁽²⁾ 1mJ/cm² = 1 mW.sec/cm² = 1000µW.sec/cm²

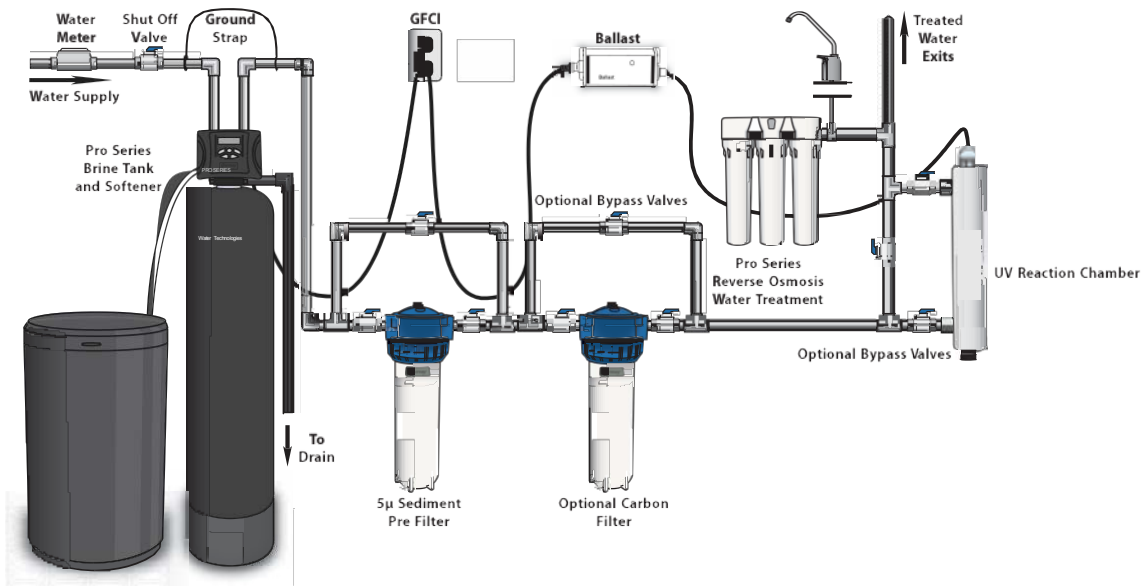
Installation Instructions: Accessibility, Orientation & Fittings

Always mount the Trevoli UV in a location that provides ample space for accessing the ultraviolet lamps. Service may require removing the UV lamp and quartz tube. A minimum distance equivalent to the length of the UV reaction chamber (stainless steel cylinder) plus 15 - 30cm is required to ensure adequate clearance. As the Trevoli UV disinfection system generates heat during use, please ensure that no combustible items come into contact with, or are in proximity to the system. It is recommended that you maintain at least 15 cm of clear wall space on all sides of the Trevoli UV for cooling purposes. This will prolong the operating life of the system.

Installation Instructions: Optional Bypass Line and Drain Valve:

To prevent contamination of water in the plumbing, which may pose a health hazard, do not use the bypass line and valve if your source of supply is untreated surface water or groundwater. If your source of supply is treated municipal water, use of the bypass line and valve will permit uninterrupted treated water service in the event of a system malfunction. Always test the bypass valve following each use of the bypass line, prior to re-starting the Trevoli UV disinfection system to confirm that the valve has been fully closed and that only water from the outlet port will be going downstream. The installation of a drain valve, while not required for system operation, is recommended for all installations of the Trevoli UV disinfection system. The installation of a drain valve will allow the service technician to drain the system of water prior to conducting any service on the unit.

Recommended installation of the Trevoli UV disinfection system is as follows:



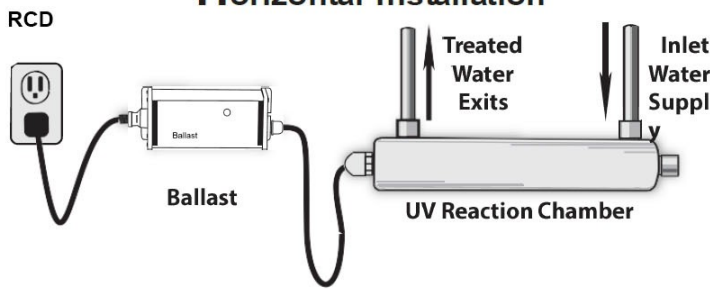
Installation Instructions: Installation of System:

- System Orientation – Trevoli Advance UV systems should be installed either horizontally or vertically, with the outlet port at the top of the system and the inlet port at the base, as shown in the diagrams below.

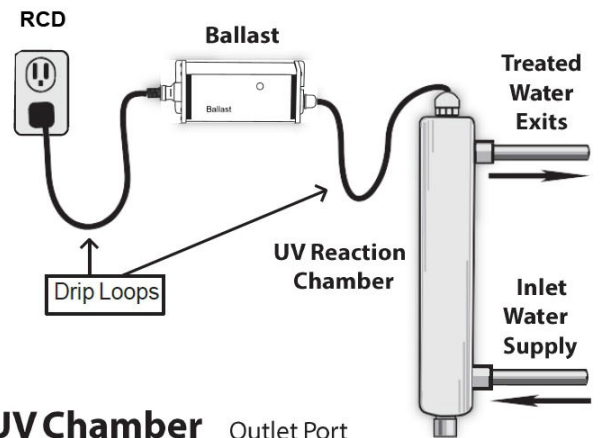
Ensure ballast is kept dry and away from any potential condensation. Use drip loops so moisture does not run down lamp harness or power cord and into ballast.

Prior to installation, remove protective caps from inlet and outlet ports of the UV reaction chamber.

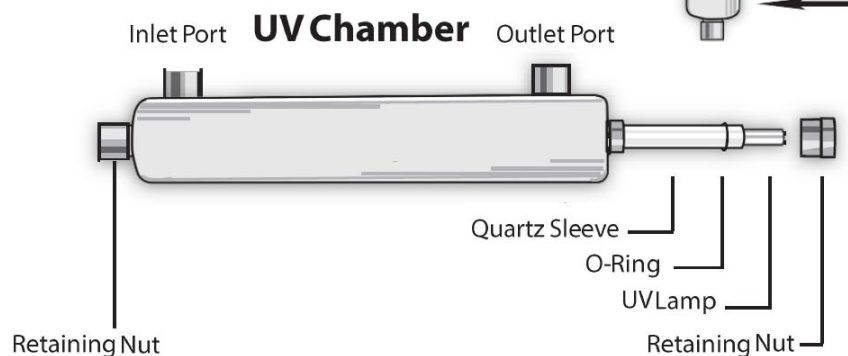
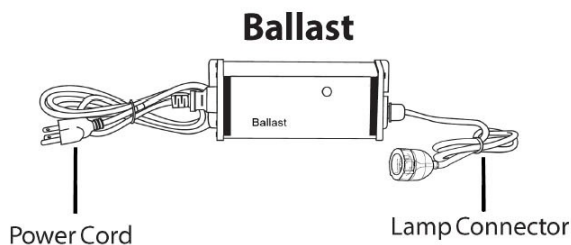
Horizontal Installation



Vertical Installation



Parts Breakdown:



When handling the UV lamps and quartz sleeves, soft gloves or a cloth should always be used to prevent oil deposits on the surface. Oil deposits from your hands can create hot spots on the surface which may lead to premature bulb failure.

- Determine a suitable location and ensure mounting of the UV system in the correct orientation can be completed.
- Attach the UV reactor chamber to the location by screwing the attached bracket to a suitable surface.
- Install all inlet / outlet plumbing to the system (inclusive of all pre-filtration and valve set-ups described above).
- Mount the ballast in a dry location close to the UV reaction chamber. Install power cord and lamp harness using drip loops (see illustration on previous page) to prevent moisture from travelling along cable and into ballast.
- Ensure the quartz sleeve is intact and that both the silicone o-rings, and retaining nuts are in position and tightened (do not overtighten the retaining nuts, these should be hand tightened only).
- Connect the four pins of the UV lamp to the UV lamp plug on the ballast
- Insert the UV lamp into the quartz sleeve and secure the protective cover.
- Slowly open the supply valves before and after the UV system and ensure there are no water leaks.
- Connect the electronic ballast to the power outlet, and ensure that the green LED illuminates.

Your UV disinfection system is now ready for use.

In-house Water Distribution System Disinfection:

The following procedure is recommended for installations of the Trevoli UV disinfection system in a whole house treatment application. For systems installed on a municipally treated water system, plumbing system disinfection is at the discretion of the user.

To disinfect the distribution system, carry out the following steps (please ensure that the UV system remains on during the entire process):

- Familiarize yourself with the various shut-off valves on your system. It is important to understand which combinations of valve positions allow you to isolate the Trevoli UV disinfection system
- Shut the main water supply off
- Close the valves necessary to isolate the UV Prefilters. Remove the filter cartridge closest to the UV. Fill the sump with 1-2 cups of household chlorine bleach (5.25%).
- Re-install the sump (without filter) and slowly re-pressurize the system. Open each faucet and allow cold water to run until you can smell chlorine in the water. Shut off the faucet and repeat with all other household faucets including hot water. Be sure to include all exterior taps, shower heads, and dishwasher / washing machine lines within this process.
- Allow the solution to remain in the lines for 30 minutes minimum.
- Re-install the pre-filter cartridge, and flush each individual water line as above until no chlorine odor is detected. It is critical to ensure that the water distribution system is fully flushed of all residual chlorine prior to use. **EXTREME CAUTION SHOULD BE EXERCISED.** As the level of chlorine in the system is approximately 25-50 times greater than that observed in municipally treated water (this is required for the disinfection of the household lines). It is extremely important that proper flushing procedures be followed from all taps prior to use.

Note: *The introduction of a chlorine disinfection solution to a hot water heater that has been used with untreated hard water or water with excessive iron, manganese or other organic contaminants may lead to oxidization of these materials. If you feel that these conditions may apply to your installation, a thorough flushing of the hot water tank should be done to eliminate the oxidized material from entering the distribution lines.*

Operation and Maintenance:

The UV system should remain on continuously to ensure protection of your water system. During normal operation of the system, the green power LED light will be illuminated to indicate the UV lamp is running. The red LED light will flash, the green light will turn off and the audible alarm will make a chirping sound if there is a problem. During periods of non-use, it is normal for the temperature of the water in the cylinder to rise. Simply flushing the water line will alleviate this condition. During humid conditions, sweating, or small water droplets may be noticed on the surface of the UV reaction chamber. The formation of condensation during high humidity conditions is normal. Do not allow condensation to drip onto ballast.

The following instructions have been provided to assist with general maintenance of the system; UV lamp replacement and quartz sleeve cleaning/ replacement. All other system repairs must be completed by an accredited service technician.

For system repairs, first contact your local water treatment dealer where you purchased this product or an accredited service technician by calling our Customer Service Centre at **0800 102335**

WARNING: *Never attempt to service the Trevoli UV system unless you are an accredited service technician, as the performance of the system could be adversely affected.*

Lamp Installation and Replacement:

WARNING: *The lamp heats up after continuous use and can burn your skin if touched. Allow lamp to cool for at least 5 minutes before removing. Do not operate the UV lamp outside of the reactor. The lamp in the unit emits powerful Ultraviolet light that can cause permanent damage to skin and eyes. Never look at the lamp when the unit is turned on. Handle the UV lamp by the ends only. Do not touch the bulb of a lamp with your fingers. If the surface of the lamp becomes dirty, use a clean lint-free cloth and isopropyl alcohol to remove the dirt.*

Your Trevoli UV disinfection system is equipped with a visible lamp failure indicator. In the event of a failure of the UV lamp, the red LED light on the electronic ballast of the unit will flash and the audible alarm will make a chirping sound. Please note that if these conditions occur and you are on a non-municipal supplied water source, you should immediately stop using the water for potable applications until the lamp is replaced and disinfection of the distribution lines is completed.

The ultraviolet lamp has an approximate life of one year (9000 Hrs.). Although the UV lamp will continue to operate long past 9000 hours, the UV output continually decreases after 9000 hours, and the UV lamp may no longer provide adequate disinfection.

Replacement UV lamps and quartz sleeves are available from an authorized dealer. Use only Trevoli lamps and sleeves to ensure system performance.

Procedure for Replacing / Installing the Ultraviolet (UV) Lamp:

- Depressurize chamber by turning off the inlet water supply and open valve downstream of system. Then close outlet valve.
- Unplug the ballast from the electrical outlet.
- Allow at least 5 minutes for lamp to cool.
- Remove the connector from the end of the UV lamp.
- Remove the UV lamp from the quartz sleeve by gently rotating the lamp free. Be sure to hold the lamp only by the ceramic tips.
- Insert the new UV lamp into the quartz sleeve and attach the connector.
- Repressurize system by slowly opening water inlet valve.
- Check the system for leaks.
- Plug in ballast to the electrical outlet.
- Ensure that the UV lamp is operating – the green and red LED lights should be illuminated.

Mineral deposits and sediment build-up on the quartz sleeve will affect the system performance by decreasing the UV light transmitted through the quartz sleeve into the water column.

The proper maintenance and replacement of the pre-filtration required for the UV system will reduce the accumulation of mineral and sediment residue on the quartz sleeve.

The quartz sleeve may be cleaned with a commercially available, non-abrasive, scale remover (should be acidic) and a lint free cloth. Cleaning of the quartz sleeve should be done on a regular basis to ensure maximum system performance. The amount of cleaning required will vary depending upon local water conditions.

All traces of the cleaning solution must be fully removed from the sleeve before it is reinstalled in the system. Care should be taken to prevent any cleaning fluid from coming into contact with the inside surface of the quartz sleeve.

Procedure for Removing / Installing the Quartz Sleeve

- Turn off the water supply at both ends of the system.
- Unplug the unit.
- Drain water from the Stainless Steel UV Chamber.
- Allow at least 5 minutes for lamp to cool.
- Remove the connector from the end of the UV lamp.
- Remove the UV lamp from the quartz sleeve by gently rotating the lamp free. Be sure to hold the lamp only by the ceramic tips.
- Remove the retaining nuts securing the quartz sleeve into the chamber
- Remove the quartz sleeve sealing O-rings
- Remove the quartz sleeve and clean as noted above.
- Insert quartz sleeve into the UV chamber. Quartz sleeves should be replaced every 3 years for optimal performance
- Install O-rings onto quartz sleeve and gland nuts onto chamber. Tighten hand tight.
- Insert UV lamp into the quartz sleeve and attach the connector.
- Slowly refill the UV chamber by opening the water supply just enough to fill the chamber with water.
- Check the system for leaks.
- Apply power to the UV system
- Ensure that the UV lamp is operating by verifying the ballast green and red LED indicators are on.



If your system is only being used seasonally, it must be stored properly for the winter. Disconnect your system from the power source and drain all water from the system.

Before placing the system back in service, disinfection of the household plumbing system is recommended.

Trouble Shooting Guide:

Problem	Possible Cause	Suggested Solution
Warm water output	Water sitting in UV reaction chamber and heating up due to infrequent use	Run tap for a short period of time
Unit leaking water	Misaligned or cross-threaded connections on inlet/outlet ports	Reinstall to ensure a solid connection with ports
	Excessive water pressure	Install pressure regulator ahead of system
No power to UV lamp when system is plugged in	Water hammer* causing pressure spikes	Install a "Water Hammer" arrestor in system
	GFCI wall socket is tripped	Reset, following manufacturer's instructions provided with the outlet Check socket with other appliances
System has power but UV lamp is not coming on (Green LED off, Red LED flashing)	Lamp not installed correctly	Ensure lamp is installed correctly with electrical fitting (must be snug)
	Lamp failure	Replace UV lamp
System is vibrating	Not mounted securely	Secure fasteners
	Water hammer* causing vibrations	Install a "Water Hammer" arrestor in system
Excessive heat generated	Not being allowed sufficient space for cooling	Clear space for cooling (min. 15-30 cm clearance around unit)
	Operated in an excessive ambient temperature	Unplug unit until temperature is within ambient operating conditions
	Water temperature is too high	Ensure treatment is on cold water side only (prior to heating of water)

***Water Hammer:** Sudden closure of a control valve or stopping of a pump produces excessive pressure surges in a pipeline. These pressure surges can cause significant damage to equipment and/or appliances directly attached to the water line. Water hammer is usually noted due to the characteristic banging sounds when valves on the line are suddenly closed. Water hammer conditions must be immediately remedied and damage to systems as a result of this condition are not covered under warranty.

WARRANTY TERMS & CONDITIONS

(Subject to the provisions of the Consumers Guarantee Act)

- 1) New Zealand Pump Distributors Ltd warrants that the TREVOLI UV products that we distribute are free from defects in workmanship and materials, for 2 YEARS from the date of purchase. Subject to the conditions of the warranty New Zealand Pump Distributors Ltd will repair any defective products free of charge at the premises of our authorized service agents throughout New Zealand.
- 2) This warranty excludes transportation costs to and from New Zealand Pump Distributors Ltd or its appointed service agents and excludes defects due to non-compliance with installation instructions, neglect or misuse, inadequate protection against freezing, low voltage or use or operation for purposes other than those for which they were designed. For further information regarding the suitability of your intended application contact us.
- 3) The 2 YEAR warranty refers only to TREVOLI products sold after the 1st July 2006, and is not transferable to another TREVOLI pump and only applies to the original owner, purchaser or end user, and is subject to the Consumers Guarantee Act.
- 4) Our warranty commences from the date of purchase of the above mentioned pumps. Proof of purchase is required before consideration under warranty is given. Record your date of purchase in the space below and retain this copy for your records.

Date of Purchase:

Model Purchased:

Invoice #:

New Zealand Pump Distributors PO Box 89140
Torbay
Auckland 0630

support@nzpumpdistributors.co.nz
Ph: 0800 298 765