

# Installation and Operating Instructions for Davey Steriflo® UV, Ultra Violet Water Treatment Systems Models : UV50, UV70



Minimum operating pressure is 0kPa. Installation on a flooded suction is recommended. Installation under vacuum is not advised, any damage to persons or associated equipment will not be covered under this guarantee.



Maximum operating pressure for stainless steel UV chambers is 860kPa (125 psi). If this pressure can be exceeded or if operating close to this pressure fit a suitable pressure limiting valve in the supply to the UV chamber.



**WARNING:** The UV Chamber operates under pressure. Under no circumstances should the UV Chamber be disassembled unless the internal pressure of the unit has been relieved. Failure to observe this warning will expose persons to the possibility of personal injury and may result in damage to the UV system or other property.



Ultra violet radiation is harmful to skin & eyes.  
**DO NOT LOOK AT UV LAMP WHILE LAMP IS OPERATING.**



**DO NOT DISASSEMBLE ANY COMPONENTS UNTIL YOU HAVE FULLY READ THESE INSTRUCTIONS!**



This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



If any electrical supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

**Please pass these instructions onto the operator of this equipment.**

## **Table of Contents**

Introduction	Page 3
Preparing your system	Page 3
Choosing a Site	Page 4
Housing your Steriflo® System	Page 4
Power Connection	Page 5
Electrical Power Surge Protection	Page 5 - 6
Pipe Connections	Page 6
Pre-treatment (drinking water)	Page 6
Lamp Installation	Page 7
Operation	Page 7
Maintenance	Page 8 - 9
Water Quality	Page 9
Lamp Fail Alarm	Page 9
Trouble Shooting	Page 10
Specifications	Page 10
Spare Parts	Page 10
Warning - UV Radiation	Page 11
After Sales Service	Page 11

Congratulations on your purchase of a high quality, New Zealand made Steriflo® Ultra Violet water treatment system. All components have been designed and manufactured to give trouble free, reliable operation.

Your new Steriflo® system incorporates a lamp failure system design feature that enables you to be warned of a lamp failure by :-

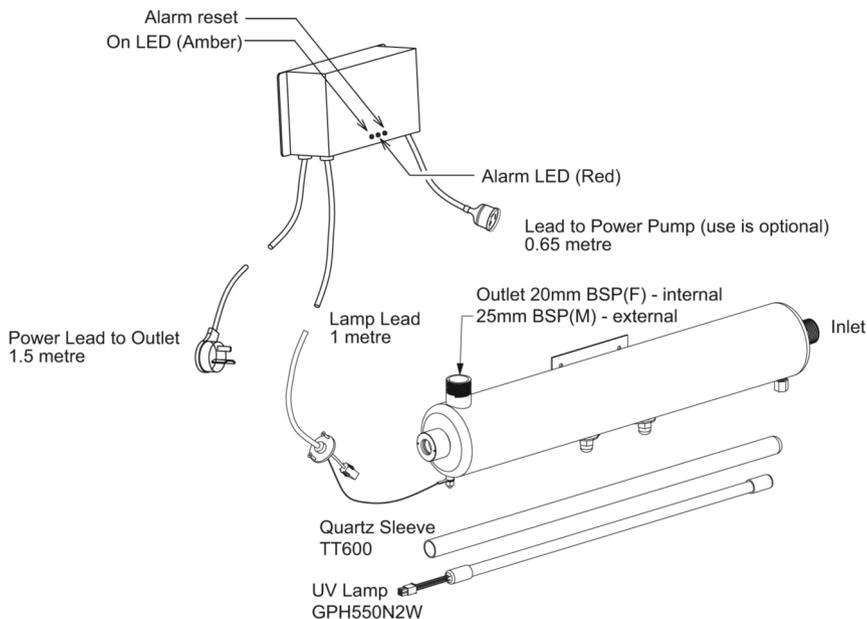
1. A lamp failure LED
2. An audible alarm

In addition when the alarm “beeps” on and off, the lamp is due to be changed so effective treatment is maintained. Flashing of the red LED indicates that the lamp countdown timer is operating.

**Before installing your new Steriflo®, please read all instructions carefully as failures caused by incorrect installation or operation are not covered by the guarantee. Your Ultra Violet water treatment system is designed to handle clean water free of particulate matter. The system should not be used for any other purpose without specific referral to Davey Water Products. The use of the system with flammable, corrosive and other materials of a hazardous nature is specifically excluded.**



**The appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure they do not play with the appliance.**



**NOTE: The quartz sleeve has been factory fitted, and there is no need to remove these endcaps or sleeve on first installation. Before removing sleeve, please read the Maintenance section of these instructions completely.**

## Preparing your system

On removing your Steriflo® system from its carton you should check all components, especially the lamp, to ensure all are present and have not been damaged in transportation. You should have:

1. Power supply control box with indicator light(s) and electrical flex.
2. UV lamp.
3. Treatment chamber with mounting bracket.

## Choosing a Site

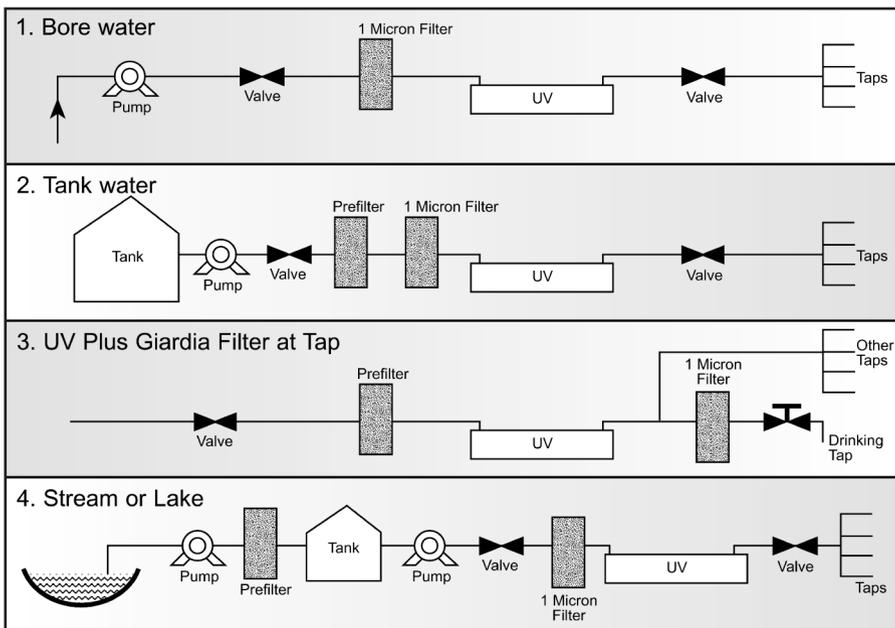
Choose a site with a firm mounting position. Allow room for removal of the lamp and sleeve during servicing. Leave a chamber lengths space at the lamp connector end for lamp removal. Installation can be horizontal (outlet facing upwards) or vertical (outlet horizontal).

## Housing your Steriflo® System

To protect your Steriflo® system from the weather, make sure the site is water proof, frost free and has adequate ventilation. Allow for drainage, to avoid damage to flooring etc., that over time may occur from leaking pipe joints or seals.



**WARNING: Some insects, such as small ants, find electrical devices attractive for various reasons. If your site or enclosure is susceptible to insect infestation you should implement a suitable pest control plan.**



## Power Connection



**WARNING:** When servicing or attending your Steriflo<sup>®</sup>, always ensure power is switched off and lead unplugged. Electrical connections should be serviced only by qualified persons. If any of the electrical supply leads of this system are damaged, they must only be replaced by a qualified service person.

Connect lead to power supply designated on control box label. Earth stainless steel chambers using bolt provided on the chamber.



**Install the power supply enclosure above the treatment chamber so that in the event of a leak, water cannot drip down the lamp lead into the enclosure.**  
**CAUTION:** The supply cord is necessary for lamp changing. The three pin supply plug must remain accessible after installation. If installed to fixed wiring without the plug a two pole switch must be fitted and its ON and OFF positions shall be marked.



The lead containing an outlet plug is for easy connection to a water pump. Ensure flow rate of the pump does not exceed rated flow of the UV system or maximum rated current draw of 5.7A.



The Steriflo<sup>®</sup> control box has a red LED alarm indicator light mounted on its front panel, adjacent to the amber “power on” LED. This light will be illuminated whenever the Steriflo<sup>®</sup> control box senses no lamp current. There is also an audible alarm in the event of lamp failure. The LED and/or alarm will only work when unit is connected to the correct electrical supply.



Should the unit alarm, power to the pump will be interrupted ensuring safe water is always supplied. Manual overriding of this feature is available by briefly pressing the reset button once for emergency water supply.



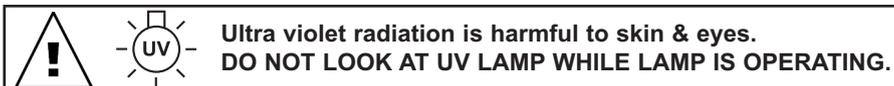
If pump outlet is not required retain plastic guard supplied on pump outlet.

## Electrical Power Surge Protection

An electrical power surge or spike can travel on the supply lines and cause serious damage to your electrical equipment. The Steriflo® control box has a 1 Amp fuse to protect the circuit. The fuse is not a lightning arrestor and may not protect the Steriflo® if lightning or a very powerful surge hits the unit.

If the installation is subject to electrical power surges or lightning we strongly recommend the use of suitable additional surge protection devices on ALL electrical equipment.

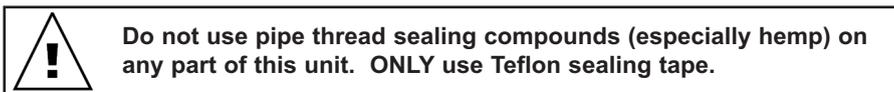
**We recommend the use of an RCD or earth leakage circuit breaker on the power supply to your unit.**



## Pipe Connections



Never use PVC pipe directly connected to unit. PVC pipe and fittings can be used after 90° metal elbows are connected to the inlet and outlet of the chamber eg. brass fittings. Larger diameter pipe may be used to minimise resistance to flow, but maximum flow rates should not be exceeded, as correct water treatment cannot be assured at higher flows. If flows may exceed the design maximum, install a flow restriction device.



Use unions at pipe connections to enable easy removal and servicing. Use sufficient tape to ensure airtight seal and do not over tighten. To prevent strain on unit threads always support heavy inlet and outlet pipes.

## Pre-treatment (drinking water)

Prefiltration is usually required to ensure that particulate matter does not shield micro-organisms from the UV light. Sand filtration or 20 micron cartridge filtration is the usual minimum. To protect against cysts such as Giardia or Cryptosporidium, secondary depth cartridge filtration is recommended - a least 5 micron, but preferably 1 micron. Whole supply of depth cartridge filtration is recommended however in some cases installing on the drinking supply may only be practical.

## Lamp Installation

Once the Steriflo® Treatment Chamber has been connected to the pipework, the installation should be checked for water leaks. For installations using a pressure pump, connect 3-pin plug to main power socket, prime the pump and fill chamber with water.

**Once checked, disconnect power to the pump and remove 3-pin plug from socket.**

Attach the “DO NOT LOOK AT LAMP” sticker in an obvious position on the treatment chamber, check that the chamber is clean to ensure the sticker will adhere correctly.

The Quartz Sleeve is pre-installed in the treatment chamber, and provided the endcap has not been disturbed or undone, is able to withstand well in excess of the maximum operating pressures.

If the chamber test is successful, it is now time to insert the lamp.

Expose the connection end of the lamp from its transport tube and protective wrapping. The lamp connection socket is “keyed” to ensure correct alignment. Carefully remove the tube fully from its transport tube, touching the lamp as little as possible. Handle the lamp by the ends where possible. Wipe with clean cloth and methylated spirits if fingerprints or dirt need removing. Slide the lamp into the chamber, fit lamp connection socket and then fasten the end washer into the endcap, with the screws provided.

## Operation

Once all leak testing and lamp fitment has been completed, prime pump and connect pump lead to supplied outlet. Connect three pin plug to power outlet and switch on. Open valves and allow water to fill the chamber. The “Mains On” Amber LED will be illuminated and the red alarm light will flash slowly. Note: If chamber does not fill with water within two minutes, reprime the pump to avoid damage to the lamp.

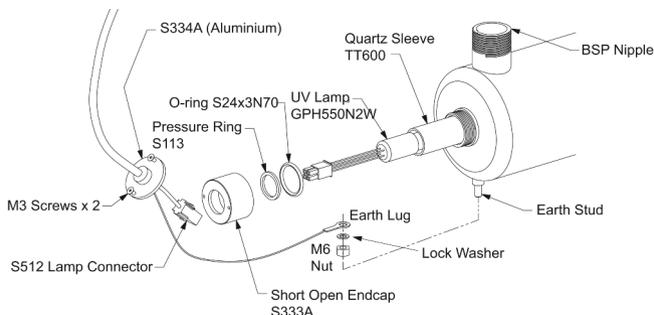
Allow two minutes for the UV lamp to reach full intensity before starting water flow. Full lamp performance for a new installation will be achieved in 24 hours. On a new installation where no other form of sterilisation has been in constant usage, we recommend flushing the pipework with a suitable sanitiser such as Steritank HP or Davey Acquasafe - for dosage refer to product instructions. This solution should be left in the piping for at least an hour and preferably overnight.

The sanitising solution can be dosed to the water tank or if necessary added as a shot dose to the bowl of any filter housing installed with the UV system and slowly flushed into the piping.

If dosed to the water tank the Steritank HP or Davey Acquasafe can be left in the water as it is tasteless and suitable for use in drinking water. If added as a shot dose it should be rinsed out through a nearby tap.

**Davey Water Products can not accept responsibility for loss or damage resulting from incorrect or unauthorised installations.**

## Maintenance



### Lamp changing (every year of operation) :

1. Shut valve(s) so that water cannot flow through steriliser.
2. Switch off steriliser and unplug from mains.
3. Undo lamp end cover plate screws.
4. Unplug lamp connector.
5. Remove old lamp and replace with new one.
6. Reconnect the lamp connector which is keyed for correct orientation.
7. Refasten the lamp cover plate with screws
8. Allow a one minute delay to reset the lamp ballast before reconnecting mains power.
9. Reset the lamp timer by depressing the reset button until an audible “beep” sounds indicating that the lamp timer has been reset for a further 12 months. Handle lamp only by the ends.

### Quartz Sleeve Cleaning (three monthly) :

If dirt is allowed to build up on the quartz sleeve it will impair the UV output. The quartz sleeve should be removed after one month and inspected for deposits. Clean with methylated spirits (5% hydrochloric acid if heavily fouled) and carefully dry. Handle the sleeve with tissue to keep it clean. The sleeve should be cleaned every three months or as required.

### Sleeve removal (use care-fragile) :



**CAUTION: Handling lamp and quartz sleeve. Keep the quartz components free of finger marks to avoid loss of output through dirt or grease shadows - handle the lamps by their ends where possible. Wipe lamp and sleeve with clean cloth or tissue if needed. The o-rings should be replaced annually or if damaged – do not grease the o-rings.**

1. Remove lamp as described.
2. Remove drain port cap and empty water from chamber.
3. Withdraw sleeve carefully. Take care to retain white pressure ring.
4. Inspect o-ring for damage, replace annually.



**NOTE: When replacing sleeve ensure domed end locates in internal holder at the far end of the chamber.**

## Maintenance continued...

Reverse procedure when replacing sleeve.

When replacing the quartz sleeve after cleaning the sleeve end should protrude around 4 to 5 mm evenly above the threaded nipple before replacing the o-ring. More or less than this indicates the sleeve may not be properly located and serious damage could result when the end-cap is fitted and/or the system is re-pressurised.

Place o-ring over sleeve and fit end cap with white pressure ring inside it, fastening it hand tight only.

A tiny amount of silicon spray or CRC in the end of aluminium endcap threads will aid easy tightening. Do not use excessive force when tightening nuts. Do not re-use quartz sleeve or o-ring if damaged.

## Water Quality

Where the water being pumped contains unusually high levels of dissolved solids particularly hard water, iron, manganese or biological organisms, a deposit build up on the quartz sleeve may occur over time. Maximum recommended parameters are as follows:

Iron:	<0.3 mg/l	Hardness:	<120 mg/l	Turbidity:	< 1 NTU
Manganese:	< 0.05mg/l	Tannins:	< 0.1 mg/l	UVT:	> 75% at 20°C

Note: If stated parameters are exceeded pre-filtration is required as water of this quality can compromise the effectiveness of the UV system. The filters and the sleeve should be cleaned or replaced as required to maintain them in good condition. UV transmissibility (UVT) of the water can be tested by your local dealer or by undertaking an appropriate water test.

## Lamp Alarm System

If the UV lamp is out due to a failure or bad connection the alarm buzzer will sound and the flashing red LED will light continuously. The alarm will disconnect power to the pump lead preventing untreated water from being delivered. Pressing the recessed 'reset' button once briefly will silence the alarm for 24 hours at a time to allow checking the connection or lamp replacement and will also reconnect power to the pump.

The alarm function or lamp can be checked as follows:

1. Switch off mains power to the lamp power supply and remove plug from outlet.
2. Disconnect the lamp.
3. Allow one minute delay to reset the lamp ballast.
4. Reconnect the existing or replacement lamp.
5. Reconnect the power.

The lamp should be replaced after a year's running time. The alarm will start to beep intermittently after the internal clock has measured this time as a reminder to replace the lamp. Pressing the recessed 'reset' button briefly with a ballpoint pen will silence it for 24 hours at a time to allow for a new lamp to be obtained.

Once the new lamp is installed press the 'reset' button until the alarm beeps to start another year's timing. Do this whenever a new lamp is installed. The red alarm LED flashes slowly during normal operation to show the timer circuit is running.

## Trouble Shooting

Principle. An electronic ballast (choke) provides the correct voltage and current for the lamp. The circuit board monitors the current to the lamp and if it is not present, illuminates the red alarm light and sounds the alarm buzzer (a “squealing” noise). An orange light indicates the power is on.

- a) UV LAMP OUT, NO ORANGE “ON” LIGHT, NO ALARM
  - 1. No mains voltage.
  - 2. Internal fuse failed.
  - 3. Check mains power connections inside power supply.
- b) UV LAMP FLICKERING, ALARM ON
  - 1. Failed lamp.
  - 2. Poor electrical contact to lamp.
- c) UV LAMP OUT, ALARM ON
  - 1. Lamp failed.
  - 2. Poor connection to lamp (check/clean connector/lamp pins).
  - 3. Ballast failed (unlikely).
- d) LAMP ON, ALARM ON
  - 1. Faulty circuit board.
- e) LAMP OUT, ALARM OFF
  - 1. Loose connection or faulty circuit board, possibly short in lamp circuit.



**WARNING: When servicing or attending your Steriflo<sup>®</sup>, always ensure power is switched off and lead unplugged. Electrical connections should be serviced only by qualified persons. If any electrical supply lead is damaged, it must only be replaced by an electrically qualified person.**



**Care should also be taken when servicing or disassembling the unit and associated pipework to avoid possible injury from pressurised water. Unplug power, relieve pressure by opening a tap on the discharge side of the unit and allow any water in the unit to cool before attempting to dismantle.**

## Specifications

Flow range UV50:	0-50 l/min
Flow range UV70:	0-70 l/min
Water temperature range:	8-35°C
Water pressure:	0-860 kPa
Operating voltage/frequency:	220-240v / 50Hz
Power consumption:	45 W
Lamp life:	9,000 hours (1 year’s running)

## Spare Parts

Lamp:	GPH550N2W
Sleeve:	TT600
End nut:	S333A
Cover plate:	S334A
Lamp connector and lead:	S486
Oring:	S24x3N70
White pressure ring:	S113



**WARNING**  
**ULTRA-VIOLET RADIATION IS HARMFUL TO SKIN AND EYES.**

**EYES**

Switch off UV system before removing covers. If working within line of sight of UV light, ensure that a suitable full face plastic facemask is worn.

**SKIN**

It is recommended that exposed skin is covered to prevent sunburn, possibly severe, if working within line of sight of operating UV system.  
Note: exposure to UV light results in symptoms that develop slowly, the exposure cannot be felt at the time.

**SYMPTOMS**

**EYES:** Mild exposure - irritation developing several hours later.  
Severe exposure - sore, red eyes, sensitive to light, painful to keep eyes open.

**SKIN:** Mild exposure - slight reddening, tenderness, mild sunburn symptoms.  
Severe exposure - skin sloughing (peeling), weeping area, severe sunburn symptoms.

**FIRST AID**

**EYES:** In mild cases, if in doubt seek medical attention.  
Severe cases cover eyes with gauze or clean cloth, seek medical attention.

**SKIN:** In mild cases removal from exposure may be sufficient. If in doubt seek medical attention.  
In severe cases, cover affected area loosely with a clean bandage or cloth. Seek medical attention. Do not apply fat, butter or oil to skin.

The above notes are intended to highlight the dangers of exposure to UV radiation. With sensible precautions any hazard can be eliminated.  
Germicidal UV cannot pass through clothing or other opaque materials or clear materials such as plastics or even window glass.



During service **DO NOT** use lubricants or sealants of any type on the o-rings. Keep the inside of the quartz sleeve dry and clean.



**WARNING** - Do not use hydrocarbon based or hydrocarbon propelled sprays around the electrical components of this unit.

## After Sales Service

For professional after sales service or repair, contact your dealer.

For assistance in locating your nearest dealer, contact Davey Water Products Limited in New Zealand on 0800 654 333, by fax on 0800 654 334 or by email to [sales@daveywaterproducts.co.nz](mailto:sales@daveywaterproducts.co.nz), or in Australia contact Davey Water Products Pty Ltd, customer service centre on 1300 367 866 or visit [davey.com.au](http://davey.com.au).

## PRODUCT GUARANTEE (NEW ZEALAND)

Steriflo® systems, except for lamps, are guaranteed for a period of one year from the date of original purchase to be free of material or manufacturing defects. Should any part fail as a result of such defects within this period, the pressure system will be repaired free of charge. Additionally, a one year pro-rata, parts only guarantee commencing from the date of original purchase shall apply only to the lamp.

### TERMS AND CONDITIONS

1. This guarantee applies to all states and territories of Australia and New Zealand only and is subject to the provisions of the Trade Practices Act (Aust.), the Goods and Consumer Protection Legislation of the various Australian states and the Consumers Guarantee Act 1993 (NZ) as applicable.
2. The guarantee period commences on the date of original purchase of the equipment. Evidence of this date of original purchase must be provided when claiming repairs under guarantee. It is recommended you retain all receipts in a safe place.
3. This guarantee covers parts and workshop labour only. Goods should be forwarded, with proof of date of original purchase, to an Authorised Davey Service Centre in Australia or Davey Water Products Limited in New Zealand, freight paid.
4. The pro-rata lamp guarantee is calculated on a monthly basis, up to 12 months.
5. This guarantee is subject to due compliance by the original purchaser with all directions and conditions set out in the Installation and Operating Instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, chemical or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorised persons attempting repairs are not covered under guarantee. The product must only be connected to the voltage shown on the nameplate.
6. Without limiting the original purchaser's entitlements under the Trade Practices Act (Aust.), the Goods & Consumer Protection Legislation of the various Australian states, or the Consumers Guarantee Act 1993 (NZ), Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever arising directly or indirectly from the product or any defect.
7. Where the Trade Practices Act (Aust.), the Goods and Consumer Protection Legislation of the various Australian states and the Consumers Guarantee Act 1993 (NZ) does not apply, Davey shall not be liable for any loss of profits or any consequential, indirect or special loss, damage or injury of any kind whatsoever suffered by the purchaser arising directly or indirectly from the product or any defect and the purchaser shall indemnify Davey against any claim by any other person whatsoever in respect of any such loss, damage or injury.
8. Nothing in this guarantee is intended to have the effect of contracting out of the provisions of the Trade Practices Act (Aust.), the Goods and Consumer Protection Legislation of the various Australian states and Consumers Guarantee Act 1993 (NZ) except to the extent permitted by the various Acts and this guarantee is to be modified to the extent necessary to give effect to that intention.
9. Davey may be collecting personal information from you in order to provide you with a service. Davey Water Products Pty Ltd promises only to use this information in accordance with the Provisions of the Privacy Act 1988 (Cth) and the Privacy Policy of Davey Water Products Pty Ltd which is available at [davey.com.au](http://davey.com.au).

® Davey and Steriflo are registered trademarks of Davey Water Products Pty Ltd.

© Davey Water Products Pty Ltd 2011.

## Davey Water Products Pty Ltd

Member of the GUD Group  
**ABN 18 066 327 517**

### AUSTRALIA

#### Head Office and Manufacturing

6 Lakeview Drive,  
Scoresby, Australia 3179  
Ph: +61 3 9730 9222  
Fax: +61 3 9753 4100  
Website: [davey.com.au](http://davey.com.au)

#### Customer Service Centre

Ph: 1300 369 100  
Fax: 1300 369 119  
E-mail: [sales@davey.com.au](mailto:sales@davey.com.au)

### NEW ZEALAND

7 Rockridge Avenue,  
Penrose, Auckland 1061  
Ph: +64 9 570 9135  
Fax: +64 9 527 7654  
Website: [daveynz.co.nz](http://daveynz.co.nz)  
E-mail: [sales@daveynz.co.nz](mailto:sales@daveynz.co.nz)

#### Customer Service Centre

0800 654 333

### REST OF WORLD

6 Lakeview Drive,  
Scoresby, Australia 3179  
Ph: +61 3 9730 9121  
Fax: +61 3 9753 4248  
E-mail: [export@davey.com.au](mailto:export@davey.com.au)  
Website: [davey.com.au](http://davey.com.au)