

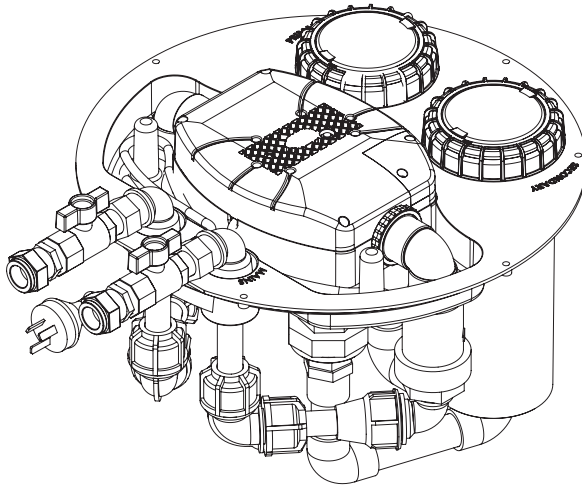
Evolution MkII

with



DAVEY

RainBank®



- INSTALLATION
- OPERATION
- TROUBLE SHOOTING



DAVEY

DAVEY

Davey commenced in 1934 and today, as Davey Water Products, manufactures and distributes a comprehensive range of products for transfer, conservation, treatment and filtration of water.

Davey has a dominant market share in Australia and exports to more than 60 separate countries, servicing some of the toughest environmental and climatic conditions on the globe.

Davey has maintained its commitment to research and development, resulting in innovative new products servicing specific and emerging market opportunities. Many of these products have received multiple awards for innovation and excellence which have led to our induction into the Manufacturing Hall of Fame in Victoria.

Davey maintains leadership in quality with an environmental focus by holding ISO 9001 certification and ISO 14001 environmental standard.

Davey is today a wholly owned subsidiary of GUD, a 'Top 200' Australian public company whose shares are listed on the Australian Stock Exchange.

Now more than ever "Depend on Davey" reflects a business culture of dependable, innovative water solutions when and where you need them, supported by the best service and advice.

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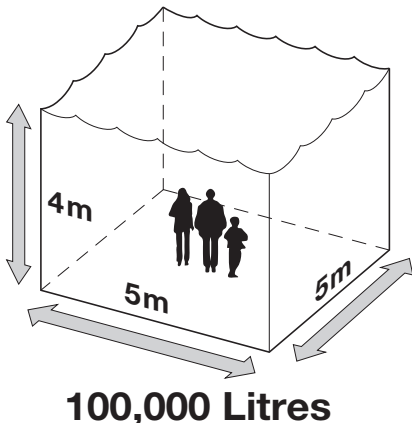
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ABOUT RAINBANK. THE EASY WAY TO SAVE WATER

Congratulations on your purchase of a high quality Australian made Davey RainBank automatic water controller. RainBank is patented and has been fitted to thousands of Australian homes.

- RainBank allows you to use water from your rainwater tank for your toilet, washing machine or garden whenever there is water in the tank.
- If the tank water is exhausted RainBank automatically and seamlessly switches you over to mains water.
- RainBank has an in-built “dual check valve” for low hazard back flow prevention.

RainBank can save up to 40% of your home's usage of mains water, which could be up to 100,000 litres of water a year.



Your actual savings depend on your roof catchment area, rainfall and the size of your tank.

RainBank may allow you to claim tank rebates (when installed on existing homes). Check with your local water authority.

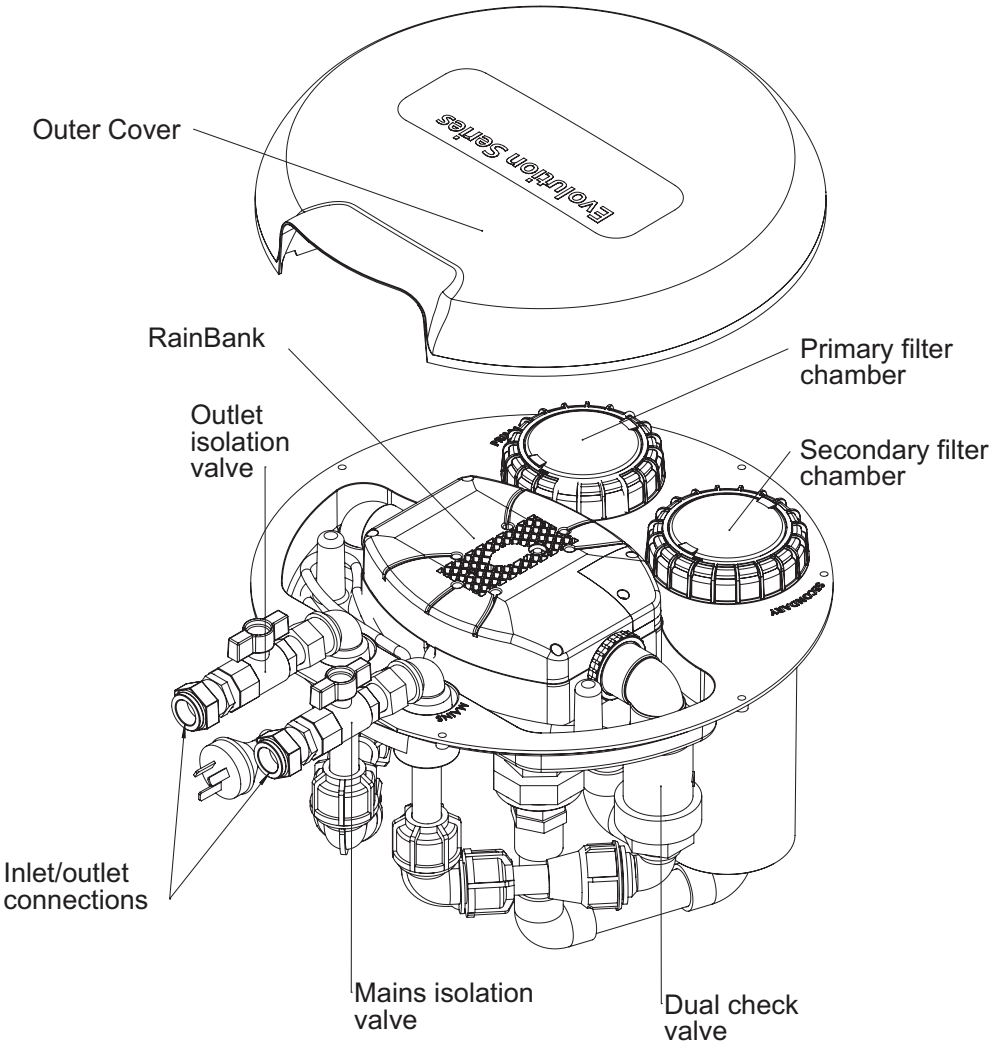
RainBank is energy efficient and cheap to run.

Because RainBank only works when it is needed it uses very little energy.

The daily power used to run a RainBank and pump system supplying two toilets in a three person dwelling is equivalent to:

- A reverse cycle air conditioner for 3 minutes
- A clothes dryer for 3 minutes
- A washing machine for 10 minutes
- A TV or PC for 30 minutes

COMPONENTS



HOW RAINBANK WORKS

1. When there is demand for water from your toilet, washing machine or garden tap, RainBank senses this demand and checks the level of water in the rainwater tank.
Note: demand must be greater than 1.5 litres per minute or mains water will be delivered.
2. If there is rainwater in the tank RainBank switches on the pump. The pressure of the pump is sufficient to overcome the pressure of the mains water inside RainBank and this moves a plunger and allows the rainwater to flow.
Note: mains water pressure is not restricted.
3. When there is no longer a demand for water, RainBank detects that water has ceased to move inside the pipes, switches off the pump and waits for another water demand.
4. If RainBank senses a water demand and detects insufficient water in the rainwater tank it will automatically allow the mains water to flow.
5. If there is a power failure during a demand for water RainBank will automatically supply the mains water as backup.

What are the advantages of RainBank over conventional air-gap systems?

- RainBank is totally hands off for your customer and needs no maintenance or adjustment.
- RainBank is easy to install.
- RainBank does not require mains water to be re-pressurised and therefore saves energy.
- RainBank is WaterMark approved - this means plumbing inspections will be approved & your plumbers insurance should cover installation faults.
- RainBank will provide mains water as backup when:
 - there is no rainwater
 - there is no electricity to run pump
 - the pump has been removed for servicing. Air-gap systems rely on pumps to pressurise all water and do not function without them.

BEFORE YOU START



IMPORTANT:

- Because it involves mains water, RainBank may only be legally installed by a licensed plumber. Ensure mains water pressure is limited to 600kPa.
- If you are in doubt about any aspect of your RainBank kit's suitability, check with your Davey Dealer. For help in locating your closet dealer call the appropriate Davey Customer Service Centre listed on the back of this booklet.
- RainBank is designed to handle clean rainwater and mains water. It should not be used to interconnect as part of a bore water, dam water, grey water, stormwater or recycled water system.
- Use at least 20mm or 3/4 inch plumbing to and from RainBank to reduce the effect of pipe friction. Galvanised pipe not recommended.
- Clean filters inside cabinet regularly.
- While RainBank does have an in-built DUAL CHECK back flow prevention valve, some water authorities require an additional external back flow valve to be plumbed into the mains water delivery line, to prevent any possible contamination of mains water by rainwater, particularly if the tank is partially or fully submerged. Check with your local water authority for their plumbing guidelines on rainwater tanks.

Other things we recommend to maximise the performance and serviceability of your RainBank.

- Fit a first flush system if possible to divert the initial run of water from the roof that may contain dirt and pollutants.
- Fit a strainer to the top of your tank inlet to stop leaves entering the system.

INSTALLATION INSTRUCTIONS

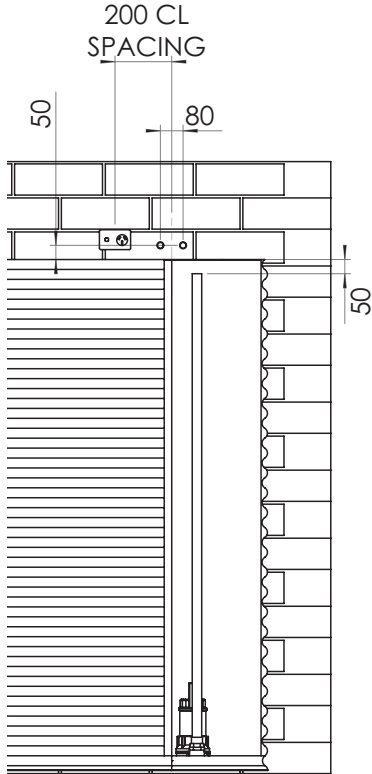
Things you should be aware of:

- Before installing RainBank please read all instructions carefully as failures caused by incorrect installation are not covered under warranty.
- The pumping of abrasive materials will damage the system and void the warranty.
- Some insects such as small ants find electrical devices attractive for various reasons. If your controller or pump is susceptible to insect infestation you should implement a suitable pest control plan.
- **Limit mains water pressure to 600kPa.**
- All pipe work and fittings should be labelled in accordance with local standards such as Australian Standard AS/NZS 3500. This standard requires that all pipework containing rainwater is marked with green 'rainwater' tape or stickers at 1 meter intervals and every outlet that may deliver rainwater is to be permanently signed with 'Rain Water' signage or a green tap marked 'RW'.
- Mains electrical connections and checks must be made by a qualified electrician and comply with applicable local standards. The 12 volt connections need not be carried out by a qualified electrician, but should be done in compliance with applicable standards.
- In accordance with AS/NZS 60335.2.41 we are obliged to inform you that this controller and any pump controlled by it is not to be used by children or infirm persons and must not be used as a toy by children.
- Davey recommends a 2mm hole in the pipe work just above the pump outlet to clear air from the pipe work.

NOTE: Please be advised that a disconnection incorporated in the fixed wiring is to be provided.

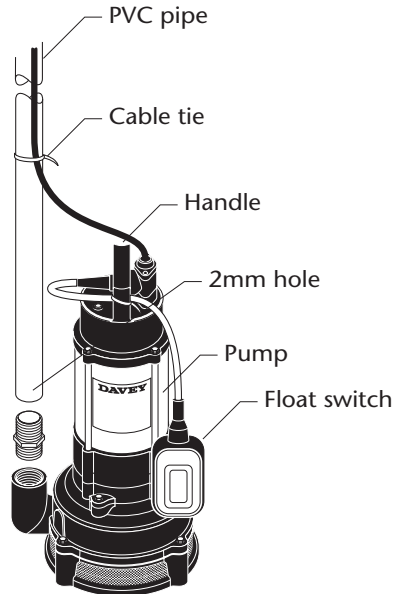
HOW TO INSTALL RAINBANK

1. Run mains water plumbing, rainwater plumbing and power supply through external wall according to the following dimensions.

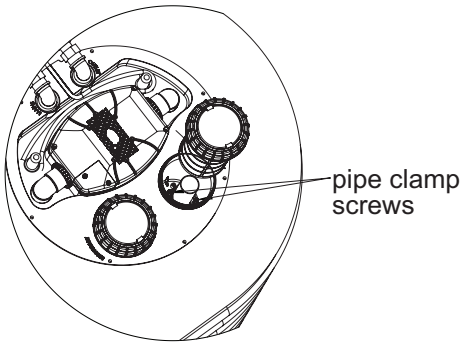


2. Cut $\text{\textcircled{365-375}}$ hole in tank top. Ensure that the hole position coincides with a clear area for pump to reside on tank floor. Pump should be placed in a position on tank floor which has adequate dimensions so as not to restrict the movement of the float switch.

3. Cut pump stand pipe so that pipe end is approximately 50mm from tank top in installed position.
4. Connect a cable or chain to the submersible pump – so that it can be lowered into the rainwater tank – **important – handling the pump by straining the power lead will damage the pumps water seals and cause premature failure not covered by warranty.**
5. Connect PVC (DN25) to the pump outlet and lower assembly into the rainwater tank. Cable tie pump power lead to the pipework.



6. Cable tie power lead from pump to pipework and bundle excess cable to base of the Evolution MkII.
7. Arrange pump so that stand pipe aligns with Evolution MkII inlet at base of primary filter chamber.
8. Remove primary filter lid and filter from the Evolution MkII housing to expose four Phillips head screws in chamber base.



9. Fasten Evolution MkII to tank top using self drilling sheet metal screws using the 7 locations provided.
10. Fasten the four screws in the base of the primary chamber in order to clamp stand pipe in position. Ensure screws are tight by repeating the tightening pattern.
11. Reinstall the primary filter and lid.

12. Connect Mains and outlet plumbing to Evolution MkII ensuring correct orientation. If plumbing fit out is incorrect, the use of flexible hoses is suggested to connect to the Evolution MkII.
13. Open Mains water valve and check for leaks.
14. Switch on power to RainBank and check for flashing green light – light will flash ten times as it boots up.
15. Open a tap downstream of RainBank to clear lines of air and check for leaks. Requires a flow rate of at least 10 litres in 1 minute to expel air.
16. Press manual override button on top of RainBank to start pump and flush air from rainwater lines. There must be rainwater inside the tank – this is an important part of commissioning the system.
17. Close tap and check for leaks.



IMPORTANT: TO PROTECT AGAINST ELECTRICAL SURGES AND LIGHTENING STRIKE DAMAGING RAINBANK OR ITS PUMP WE STRONGLY RECOMMEND THE USE OF A SUITABLE SURGE PROTECTION DEVICE AND RESIDUAL CURRENT DEVICES.

Test the operation of RainBank.

1. With the mains connected and the rainwater tank empty turn on one of the taps in the laundry that feed the washing machine or flush the toilet. Mains water should flow normally. The pump should **not** turn on. When this is completed turn off tap.
NOTE: Mains water indicator light is not applicable on this model.
2. Fill the rainwater tank with sufficient water to activate or cover the pump.
3. Check that the pump is correctly primed and there are no air locks that will interfere with its operation. This is essential for the proper operation of the unit. See the instructions on how to do this in the Priming section on page 13.
4. Turn on a tap or flush a toilet in the rainwater system. The pump should run and deliver rainwater. Allow to run for several minutes to clear air from pipes. The **'status'** light will now glow **'green'**.
5. Check for leaks around RainBank, the pump, pipework and fittings.

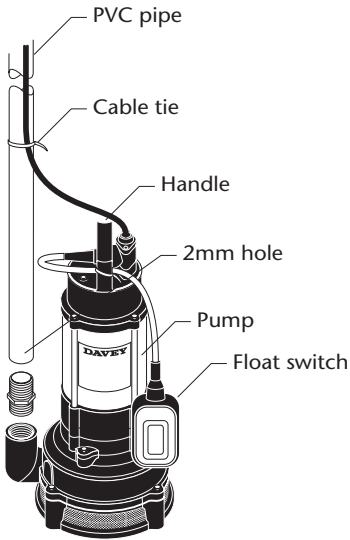
BACK FLOW PREVENTION REQUIREMENTS

IMPORTANT

- Under Australian Standard 3500 collecting/storing rainwater in a buried tank is considered a medium level hazard. Even though RainBank has a built-in dual check back flow valve, you may be required to fit additional backflow protection valves to satisfy this requirement – check with your local council as to their guidelines on rainwater tank installation and backflow prevention.

There is no need for a separate float switch as this comes attached to the submersible pump and does not plug into the RainBank unit.

INSTALLATION OF SUBMERSIBLE PUMPS



1. Use Teflon tape on the pipe to pump connection.
2. Secure the power cable to the delivery pipe with cable ties.
3. Place pump into tank.
4. Davey recommends the fitting of floating inlets to submersible pumps to minimise any possibility of sludge intake. Part number to suit pump D42A/B is FI-42.



IMPORTANT

Do not pull on power lead. Fit a rope to handle for lowering and raising pump.

PRIMING PUMPS

Submersible pumps inside tank.

Provided the pump is sitting in sufficient water the pump will self prime and push air out of the taps and appliances that are used at the other end. To let this air out without causing damage it is important that:

- All taps connected to the rainwater system are turned on
- Toilets connected to the system are flushed so the cistern fills and any air is cleared from the line.

MAINTAINING RAINBANK

RainBank does not need maintenance but there are things you can do to ensure its most reliable operation.

- Fit a “first flush” system that ensures the first run of dirty rainwater does not go into the tank.
- Clean your gutters and first flush devices and ‘Y’ strainers regularly.
- Remove branches that over hang your roof.
- Have a strainer fitted to your rainwater tank inlet and regularly check this for leaves and twigs, etc.
- You should also check for debris in the bottom of your tank a few times a year and clean this out if necessary. A first flush system will greatly reduce the need for this action.



IMPORTANT MAINTENANCE PRECAUTIONS

- Davey pump motors are fitted with an automatic thermal overload switch that stops the motor if the motor gets too hot to avoid damaging it. This automatically re-starts the motor when the temperature within the pump has dropped to a safe level. Constant tripping of this switch indicates a problem e.g. Low voltage at pump, etc.

This automatic thermal overload switch can start the pump without warning. Always disconnect the controller and/or pump motor from the electrical supply before maintenance or repairs.

- Care should also be taken when servicing or disassembling pump to avoid injury from hot pressurised water. Unplug the pump, relieve the pressure by opening a tap on the discharge side of the pump and allow any hot water to cool before attempting to dismantle.
- Do not use petroleum based fluids or solvents (e.g. oils, kerosene, turpentine, thinners, etc. on the plastic or seal components).
- Do not use hydrocarbon based or propelled sprays around the electrical components of the controller.
- During servicing use only approved non petrochemical based o-ring and gasket lubrication. If unsure consult your Davey Dealer for advice.

SYMPTOM: PUMP WILL NOT SWITCH OFF

1. Water is still being used.

Check all taps, toilets and appliances connected to RainBank system to ensure they are turned off.

2. Water is leaking on discharge side of RainBank system.

Check for leaks and repair.

SYMPTOM: PUMP WILL NOT SWITCH ON

1. No power supply to pump.

Contact electrician and have power restored.

2. No water in tank.

Check water level in tank.

3. Mains water supply not connected to RainBank.

RainBank system must have a pressurised water supply connected to inlet. Press 'manual override' button to simulate mains water flowing.

4. Mains supply to RainBank turned off.

Turn on mains water supply. Press 'manual override' button to simulate mains water flowing. Pump will start if rain water is available.

5. Mains water flow is too low.

Ensure flow at most distant outlet is above 5 litres per minute.

OTHER SYMPTOMS:

Mains water is still in use when pump is running. Possible cause - pump needs to be primed.

Mains water is still in use when pump is running. Possible cause - debris is caught inside RainBank preventing plunger mechanism from sealing completely.

Mains water is still in use when pump is running. Possible cause - pump impeller blocked. Have pump serviced.

Mains water not passing through RainBank. Possible cause - RainBank installed backwards. Install RainBank according to installation & operating instructions. Arrow on top of RainBank indicates direction of flow.

Mains water not passing through RainBank. Possible cause - debris is blocking inlet and or filters in or out of RainBank.

In order of most likely solution:

1. Mains inlet stop valve closed
– open stop valve.
2. RainBank blocked – this is highly unlikely, ensure 1 is checked first.

Mains water pressure and flow too low. Possible cause - there is a check valve or PRV installed between RainBank and tank. Remove check valve or PRV from plumbing.

Pump hums. Possible cause - pump is jammed or seized. Have pump serviced.

Water leaking from connection between pump and RainBank. Possible cause - installer has failed to fit connection kit correctly. Remove RainBank and re-install connection kit.

Mains water filling up tank. Possible cause - debris caught inside RainBank.

Pump takes more than 10 seconds to turn on. This is anti-cycling software that allows 1 start every 10 seconds.

WARNINGS

- Before installing your RainBank controller, please read all instructions carefully as failures caused by incorrect installation or operation are not covered by the guarantee. Your RainBank controller is designed to handle clean water. The system should not be used for any other purpose without specific referral to Davey. The use of the system to pump flammable, corrosive and other materials of a hazardous nature is specifically excluded.
- WARNING: Water freezing inside the RainBank will damage the unit. Locate your RainBank and pump so that they are not susceptible to freezing.
- RainBank must be installed and serviced by a licensed plumber.
- Check with your local water authority on water restrictions when your rainwater tank is connected to mains water.
- Do not enter a empty rainwater tank - they may contain hazardous gases.
- Secure all openings to the rainwater tank to ensure it will not permit access to children.
- If the supply cord is damaged, it must be replaced by manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

PLUMBERS TIPS

1. Fit first flush devices to all down pipes to ensure clean water inside the tank (dirty tank water can stain toilets and clothes).
2. Clear swarf from all pipes and holes drilled into the tank (swarf can block valves, RainBank and toilet valves).
3. Check with local council plumbing teams for backflow requirements.
4. Keep pipe work well braced as vibrations can become noisy.
5. Fill rainwater tank above float switch with garden hose to check system.
6. Make sure pump is full of water (primed) before leaving site. Flush all air out of system by running pump with an outlet downstream open.

Davey Repair or Replacement Guarantee

In the unlikely event in Australia or New Zealand that this Davey product develops any malfunction within warranty periods beginning from the date of original purchase due to faulty materials or manufacture, Davey will at our option repair or replace it for you free of charge, subject to the conditions below.

Davey Guarantee Period

Rainbank - Three Years

Should you experience any difficulties with your Davey product, we suggest in the first instance that you contact the Davey Dealer from which you purchased the Davey product. Alternatively you can phone our Customer Service line on 1300 367 866 in Australia, or 0800 654 333 in New Zealand, or send a written letter to Davey at the address listed below. On receipt of your claim, Davey will seek to resolve your difficulties or, if the product is faulty or defective, advise you on how to have your Davey product repaired, obtain a replacement or a refund.

Your Davey Guarantee naturally does not cover normal wear or tear, replacement of product consumables (i.e. mechanical seals, bearings or capacitors), loss or damage resulting from misuse or negligent handling, improper use for which the product was not designed or advertised, failure to properly follow the provided installation and operating instructions, failure to carry out maintenance, corrosive or abrasive water or other liquid, lightning or high voltage spikes, or unauthorized persons attempting repairs. Where applicable, your Davey product must only be connected to the voltage shown on the nameplate.

Your Davey Guarantee does not cover freight or any other costs incurred in making a claim. Please retain your receipt as proof of purchase; you **MUST** provide evidence of the date of original purchase when claiming under the Davey Guarantee.

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 Davey products. This limitation does not apply to any liability of Davey for failure to comply with a consumer guarantee applicable to your Davey product under the Australian or New Zealand legislation and does not affect any rights or remedies that may be available to you under the Australian or New Zealand Consumer Legislation.

In Australia, 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.

Should your Davey product require repair or service after the guarantee period; contact your nearest Davey Dealer or phone the Davey Customer Service Centre on the number listed on following page.

For a complete list of Davey Dealers visit our website (davey.com.au) or call.

DAVEY

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P/N 402032-5

*** Installation and operating instructions are included with the product when purchased new.
They may also be found on our website.**