

ARID Gardener



Instruction Manual

ARID Gardener

The Automatic Recycled Irrigation Distributor that allows you to easily collect, store, filter and pump reclaimed water onto your plants, shrubs and trees.

Patents Pending



N10372



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INTRODUCTION

The ARID Gardener is designed to allow recycled water to be collected and stored, filtered and then pumped into a drip irrigation system with the objective of watering plants and trees in your garden.

The system consists of:

- 50 litre collection tank.
- Two fibre mat filters.
- A 12 Volt DC pump.
- Level switches that activate at high water and low water levels.
- An automatic timer that controls the pump and level switches.
- A 240 Volt to 12 Volt DC transformer.
- Submersible Pump.

Sources of reclaimed water could be:

- Rainwater from roofs or down pipes.
- Condensation water from air conditioning units.
- Water from ponds or rainwater tanks.

Regardless of the water source, the ARID Gardener is designed to act as a storage unit, then filter and pump the water into a Holman drip system.

The system operates at low pressure and is very energy efficient. The pump is specially selected to work with drip irrigation systems.

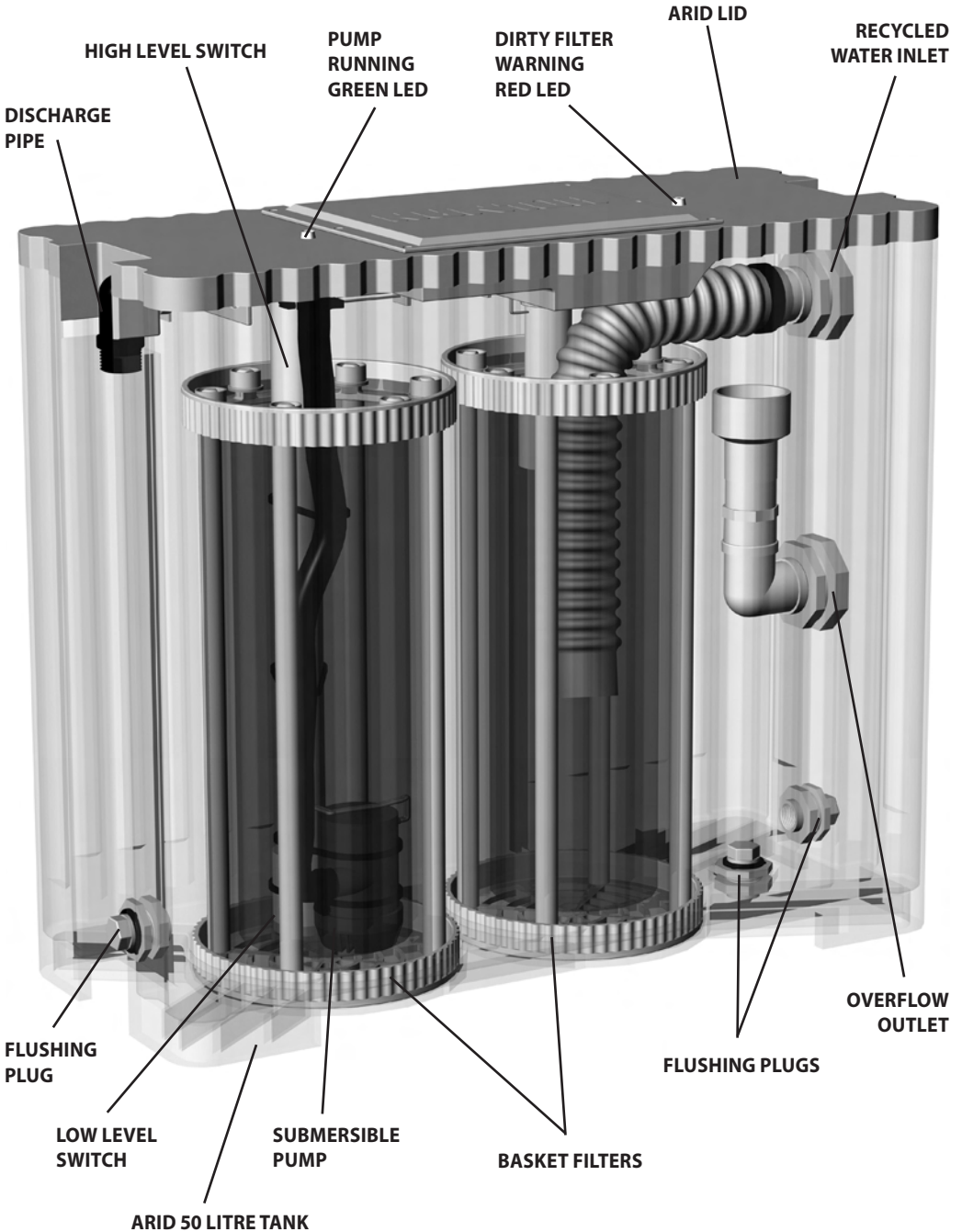
The automatic timer is included to ensure that the container is emptied at least once per day.

The ARID Gardener eliminates the need to hand bucket water into gardens to avoid the waste of this precious resource. A drip system will allow the water to be distributed to gain the maximum benefit for your garden.

The ARID Gardener will AUTOMATICALLY discharge the collection tank contents when the high level switch is activated or the timer initiates a pump cycle according to a preset start time (recommended once per day). The ARID Gardener has a low level control switch fitted that will stop the pump when the tank is empty.

The ARID Gardener filters the recycled water twice to ensure it does not clog drip lines.

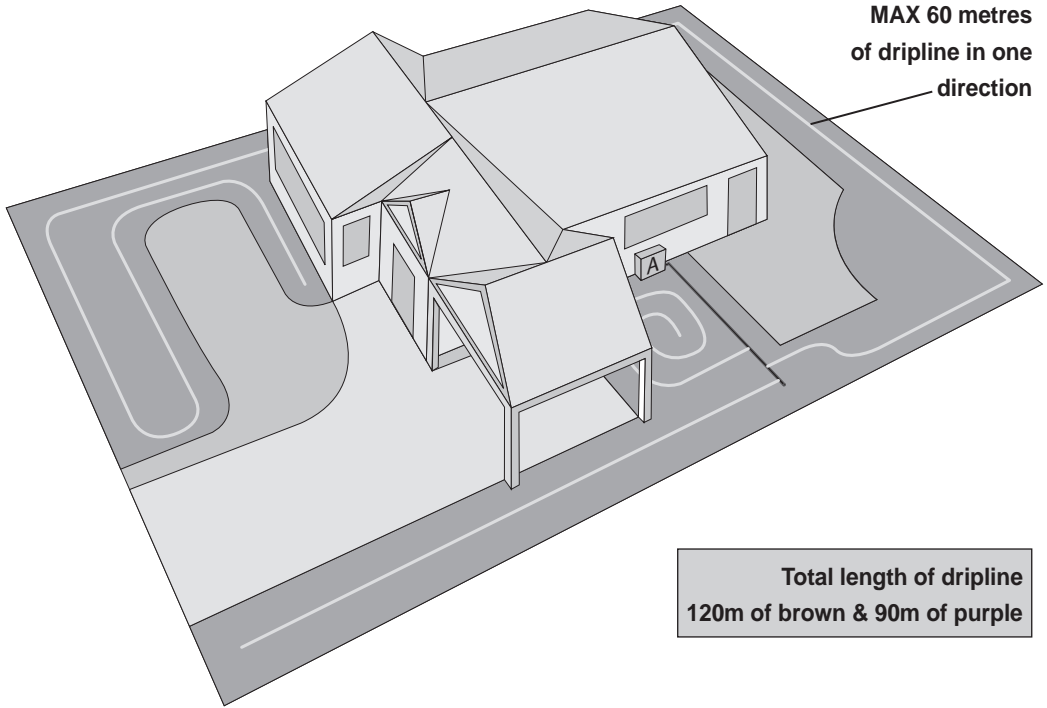
GLOSSARY



KEY FEATURES

- Safe 12 Volt Operation: No electrician required.
- Automatic Control: Timer empties system every 24 hours and high level switch prevents overflow.
- High & Low Water Level Switch: Ensures no wastage and pump is protected.
- Double Filtration: Ensures water is clean enough for drip garden watering.
- Dirty Filter Alarm: Ensures reliable clean water supply.
- Large 50 Litre Water Storage: Provides less frequent but more efficient watering times.
- 12 Volt Submersible Pump: Designed to work correctly with drip line irrigation.
- Runs up to 120 Metres of Brown Dripline or 90 Metres of Purple Dripline: Ideal for efficiently maintaining residential gardens.

ILLUSTRATION SHOWING ARID IN POSITION



Notes:

- 1) The illustration above shows the ARID Gardener labelled 'A' in position next to a house.
- 2) The black line running directly from the ARID Gardener is 19mm mainline pipe for your 13mm purple drip tube to feed off.
- 3) The light grey line running away from the black mainline is 13mm purple drip tube, which allows the recycled water to flow through it and drip out in to your garden beds. Shown above are 3 sets of drip tube which have been layed underneath all the garden beds surrounding the house.

ASSEMBLY & INSTALLATION

Introduction:

The ARID Gardener is a collection tank that allows recycled water to be filtered and pumped into a drip watering system.

The first issue a user should resolve is the source of the recycled water.

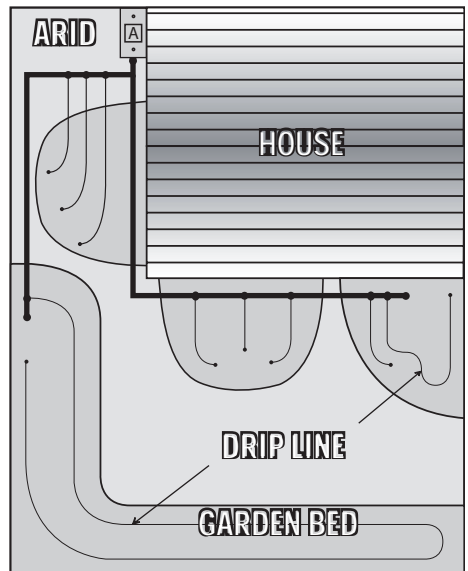
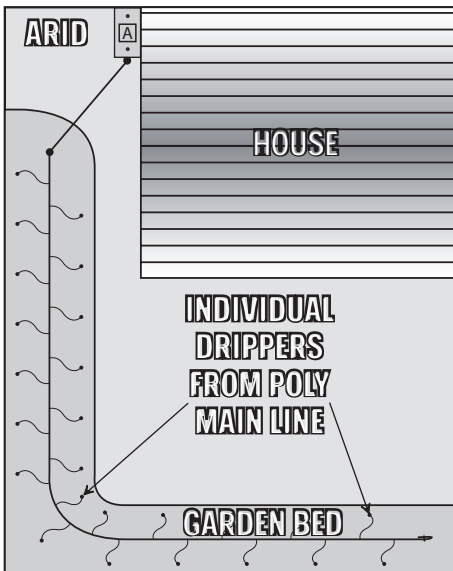
Water could come from a number of sources such as: -

- Rainwater from roofs or downpipes.
- Condensation water from air conditioning units.
- Water from ponds.
- Water from rainwater tanks.
- Other water sources.

Location of the ARID Gardener:

There are important considerations for deciding the location of the ARID Gardener tank:-

- Your water source(s) location(s).
- The location of the garden area to be watered.
- You should also select a location that allows you to get the 12 Volt power supply easily to the unit.



ASSEMBLY & INSTALLATION

Installation of the ARID Gardener:

The ARID Gardener can be installed by yourself. It is not designed to be connected to the plumbing pipe work of your house.

The ARID Gardener should be located on a level, even surface. It should be located in a protected area so that it is not damaged by traffic and if possible it should be located in an area protected from the elements (rain and sun).

The ARID Gardener is NOT designed to be installed below ground level.

The key issues that MUST be addressed are: -

- 1) You need to be able to plug the transformer into a power point and then connect the 12 Volt power lead to the tank.
- 2) You need to be able to connect the inlet water source into the inlet of the ARID Gardener, making sure the ARID Gardener is below the inlet source.
- 3) The “overflow” outlet can be connected to a suitable outlet or sump.
- 4) The outlet pipe from the ARID Gardener pump needs to be underground or protected from damage.
- 5) A suitable drip system should be installed to adequately disperse the water collected by the ARID Gardener.

SET UP & OPERATION

Introduction:

It is important to set the ARID Gardener up correctly. Also, please take time to understand how the system works and operates.

Essential Components:

The ARID Gardener is an automatic system.

The essential components of the system are: -

- Programmed timer.
- 12 Volt D.C. pump.
- High level switch.
- Low level switch.
- 2 x basket “mat” filters.
- A 240V x 12V DC transformer.

Set Up:

The heart of the system is the automatic timer.

You will note that the system comes completely wired up. To start the system you need to: -

- 1) Plug the transformer into a standard power point (indoors or outdoors) and plug the 12V lead into the appropriate plug on the lid of the tank.
- 2) Install 2 x AA batteries into the automatic timer.
- 3) Plug the lead from the timer into the appropriate socket in the lid (4 contacts).
- 4) Connect the drip irrigation system to the ARID Gardener tank outlet.
(Please use a “Y” external filter).
- 5) Fill the tank with water to allow you to trial the system.

Programming the Automatic Timer - Introduction:

The ARID programmable timer operates in 2 ways: -

- 1) It starts & stops the pump based on information from the high & low water level switches.
- 2) It will start the pump on an alarm time and run for the set run time. (Unless the low level switch is activated first)

You should set the timer to start at least once per day and run for at least the time it takes to empty a full ARID storage tank.

SET UP & OPERATION

Programming the Automatic Timer - Alarms:

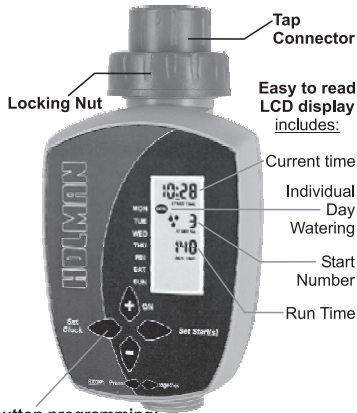
The ARID Gardener has 2 lights that assist you in monitoring the performance of your system.

There are green and red indicator lights, which indicate as follows: -

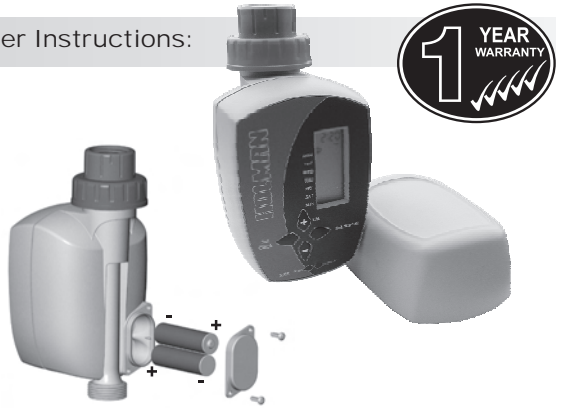
GREEN - FULL ON - **Pump is running.**

RED - FLASHING - **Level switch failure (check they are moving freely).**

Battery Operated Programmable Timer Instructions:



Simple 4 button programming:
Set clock, Set Starts, Manual Start.



Installing and Replacing Batteries.

Simply unscrew the battery cover to access batteries.

Using the diagram above, install 2 x 1.5 volt AA ALKALINE batteries in the correct orientation.

Screw the cover back into place. The unit will close automatically when batteries are low.

Installing to the ARID Gardener Tank.

- 1) Slide the locking nut over the threaded elbow.
- 2) Screw the tap connector tightly onto the threaded elbow to ensure NO leaks.
- 3) Place the timer on the connector.
- 4) Screw the locking nut to the tap timer (Arrow indicates a left hand thread)
- 5) Plug the 4 pin plug into the 4 pin socket inside the lid of the ARID Gardener.








STEP 1 - SET CLOCK & DAY





Note: This product has a military clock (24hr clock). Press button and adjust using or to set minutes, hours & correct day of the week.










SET UP & OPERATION

STEP 2 - SET START TIME & DAYS

Note: This timer has up to 9 programmable starts per day. However you should only have to program 1 start per day. This start will ensure that the ARID tank is emptied at least once per day.



Set Start Time: To set an automatic start time: Press  and start No "1" will flash. Press  and the minutes will flash. Adjust using  or  buttons. Press  and the hour will flash. Adjust using  or  buttons. Note: Military clock.



Set Watering Days: Press  and "MON" will flash. To leave active press  or to delete Press  button. Note: Continue through the 7 days by pressing  and either leave days active or delete as required.

Set Run Time: Press  and adjust run time using the  or  buttons. Note: Minimum run time is 1 minute and the maximum run time is 255 minutes. Press  to return to clock. If a second automatic start time is required, Press  and start No "1" will flash. Move to start No "2" position by pressing  button once. Then proceed to set the start time, watering days and run time by pressing  and adjust with the  or  buttons.

Stop: To stop an automatic or manual water cycle, Press  &  simultaneously.

Manual ON: To run manually for a length of time up to 255 minutes, press  (manual on) and set the run time required by pressing either  or  buttons.

Manual RUN a start: To run any automatic start time once, Press  (manually run a start). The display will show start No "1" and to activate this start time press  button.

Winter Shut Down: In winter or after heavy rain, press  or  buttons simultaneously, to activate the winter shutdown mode. Remove batteries: Batteries corrode over time, so remove & start a new season with new ALKALINE batteries.

Note: Flat batteries will be shown by :  and the unit will not open.

No Water in Tank: When you see OFF on the LCD screen of the automatic timer, this indicates that there is no water in the tank and the low level switch is stopping watering occurring.

Testing System:

The first thing you should do is test the operations of the system. This should be done before you begin collecting from your water source.

The key objectives of your test are: -

- 1) Check if all float switches work. (Turn ON and OFF).
- 2) Determine how long your installed drip system takes to empty the tank.

Test Procedure:

- 1) Set the timer with current time and day.
- 2) Set a nominal run time of say 10 minutes on the timer.
- 3) Fill the tank with tap water until the high level switch initiates a pumping cycle.
- 4) Time how long it takes to empty the tank and stop on the low level switch. (Say this takes 8 minutes).

SET UP & OPERATION

- 5) If the high or low level switches do not operate properly, please check they are free and move up and down easily.
- 6) Set the timer to start at the time of day that suits you. (We would suggest emptying the tank automatically in the evening at say 6pm). Set a run time equivalent to your test above (8 minutes). This automatic start ensures the water in the tank is emptied every day and therefore does not stagnate.
- 7) While the unit is operating please check the indicator LED lights are working.
GREEN ON – Pump is working RED - Should be off

Operating System:

Once you set the system up it will work automatically.

The basis of operation are: -

- 1) It will activate a pump cycle when the water level reaches the high water switch.
- 2) It will stop when the water hits the low water switch OR the run time set on the timer is used up.
- 3) It will activate a watering cycle once per day based on the run start time you set on the timer.
Regardless of the programmed run time (8 minutes in this example) if the tank runs dry the low level switch will stop the pump from running.

Cleaning the Filters:

The filters are designed to remove all large particles that if allowed to be pumped into your drippers would block them up.

The filters will get dirty and blocked and MUST be cleaned regularly.

The frequency at which you must clean the filters is a function of how dirty the water is that enters your ARID Gardener. We recommend you keep an eye on the filters and determine how often they should be cleaned.

The ARID Gardener is fitted with an alarm light (RED) on the top of the tank.

This light will light up when the filters are substantially blocked.

This should be a last resort. You should be cleaning your filters BEFORE this light comes on.

The filters are easy to clean: -

- 1) Unplug the power leads and disconnect the out pipe at the nut on the top of the timer/ (Note – this is a left hand thread).
- 2) Unclip the lid and lift it vertically upwards. (Note – the pump, delivery pipe and both sensors are connected to the lid).
- 3) Remove the 2 basket filters and wash them under a tap or with a hose until they are clean.
- 4) Reverse the procedure to reassemble and then test.

DRIP IRRIGATION

Introduction:

The most efficient way to water your garden and disperse the precious water you have saved is by using drip irrigation.

The ARID Gardener is designed to discharge the recycled water into a drip system. The pump is sized to operate at the correct pressure for drip irrigation.

Holman supply a variety of different drip products. Fundamentally, they fall into two categories:

- 1) Drip line or “in-line” drip tube.
- 2) Individual drippers that fit into poly pipe or 4mm tube.

1) Drip Line

This is the easiest and most effective way of installing a drip watering system. It is most suitable where the plants, trees, or shrubs to be watered are fairly close together or in rows.

The in-line drip tube has drippers spaced at between 200mm and 350mm and they effectively water a continuous strip in your garden.

The effective width of the watered strip is wider in loams and clay soils than in sand. The wetted strip widens as it moves down the soil profile. So if you are checking the width of effective watering, dig down say 75 to 100mm below the level of the drip line and check the wetness at this level. The effective width would usually be between 300mm and 500mm each side of the drip line.

Dripscape – Brown

These drippers allow approximately two litres per hour to be discharged from each dripper. This is a lot less than the purple drip line (8lph). Where less water is coming out of the tube it is possible to run further distances from the ARID Gardener than with the purple drip line.

We recommend that up to 120 metres of this pipe can be run from the ARID Gardener. The best performance will be achieved if the drip line runs in both directions from the supply line from the ARID Gardener.

DRIP IRRIGATION

Purple Drip Line

Special drippers are used in this pipe. These drippers have a large orifice and allow more debris and particles to pass through the drippers. They pass water at approximately 8 litres per hour.

We recommend that no more than 45 metres of this drip line be used in two directions (total 90 metres) or 60 metres in one direction.

2) Individual Drippers

If you are watering trees or shrubs that are “scattered” or a long way apart, you may want to install your own drip system that utilizes standard poly pipe and you install individual drippers either directly into the poly pipe or using 4mm Ezy Flex tubing.

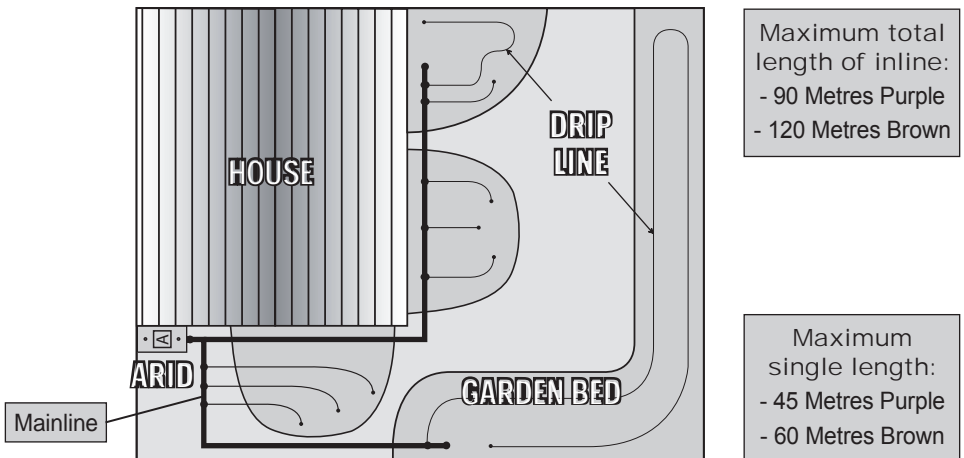
This style of system allows you to put water only where you want it. Each dripper can be positioned in exactly the correct location. No water will be wasted.

Holman provide a full range of pressure compensated (PC) drippers. PC drippers allow much more accurate application of water which means that all drippers are emitting similar volumes of water regardless of their position on the poly line.

The ARID Gardener will allow you to install up to 400 2lph PC drippers.

It is important that you run at least 19mm poly mainline from the ARID Gardener.

Remember that each time the ARID Gardener initiates a watering cycle, the mainline pipe must be filled and pressurized before the drippers will begin watering. Where the ARID Gardener has a limited amount of water for each watering cycle, it is important that the mainline pipe be as short as possible. So plot an efficient path for this and be prepared to run 13mm pipe away from the 19mm mainline.



DRIP IRRIGATION

(Note: More instructions are found at the back of this book with the drip irrigation info sheets).

Drip System Installation – Handy Hints:

1) Post ARID Gardener Filtration

It is wise to install a high capacity 'Y' Filter immediately outside the ARID Gardener.

This filter will ensure no unwanted debris is pumped into your drip system.

It is critical that filters are checked and cleaned regularly. If a filter is blocked then water will be stopped from flowing into the drip system. This can then cause damage to the pump if allowed to occur for an extended period.

2) Mainline Pipe Size

The mainline pipe leaving your ARID Gardener should be at least 19mm in diameter.

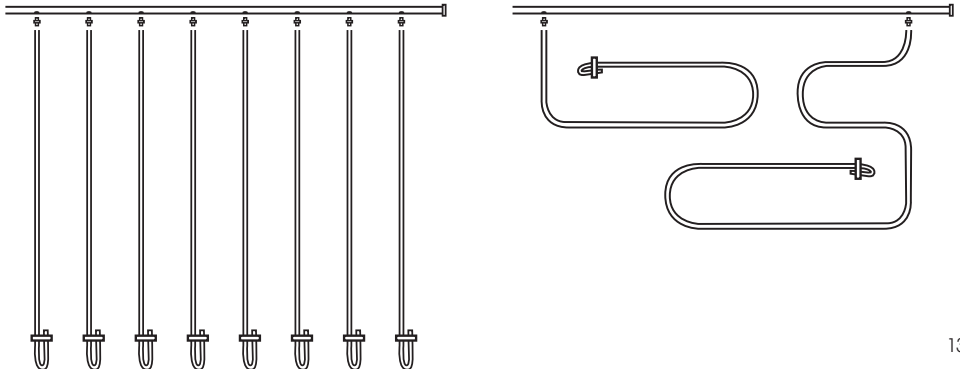
Standard poly pipe is recommended.

It is best to break the water flow into at least 2 or more directions. This means that the water flow length is reduced and the overall system will water much more evenly.

3) In Line Drip System

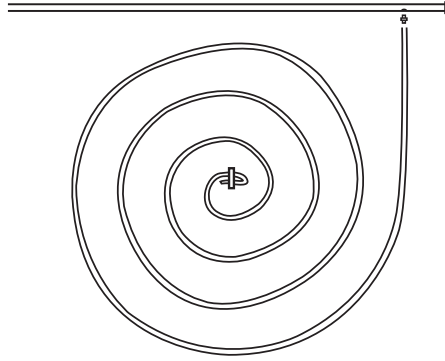
It is recommended that the in line drip runs be limited in length as much as possible. This will result in a much more even watering pattern.

Eg:



DRIP IRRIGATION

Eg:



4) Stake the Drip Lines

It is wise to use poly pipe hold down stakes to pin the mainline and drip lines firmly down. This ensures that the lines do not rise when you mulch over them.

5) Flush the System

Always thoroughly flush the drip system using a garden hose before you close the ends of the drip line and mainlines.

When closing the ends of the drip line and mainline, always start at the ends closest to the ARID Gardener and work to the ones furthest away.

6) Mulch

Always mulch your gardens.

We recommend you install 100 mm of mulch above your purple drip lines.

If you are using individual dripper systems you should mulch over the areas where water is being dispersed.

MAINTENANCE & TROUBLE SHOOTING

Maintenance:

It is VERY IMPORTANT to maintain your ARID Gardener in good working order. Remember it is a device that is designed to clean your water and prepare it for pumping into your drip watering system. The ARID Gardener will collect all solids, inside the tank.

Cleaning Filters:

The filters and tank should be cleaned regularly. They have been designed to be easily removed from the tank, so you can take them to a suitable place for cleaning. Use a hose with a strong nozzle stream, and remember to spray the filters from the opposite side to the way the dirt collected in them.

Check Level Switches:


Check level switches are free and moving up and down easily.

Check Pump:

Check pump inlets are open and not clogged.

Check Back Up Batteries:

Check back up batteries in the automatic timer. These should be replaced at least once per year.

PROBLEM	SOLUTION
The pump is running but no water is coming out.	1) Check the filters are not blocked, particularly the filter outside the unit. 2) Check water in the unit. 3) Check the low level switch is moving.
The pump is not running when the tank is full.	1) Check power is connected. 2) Check power point has power. 3) Check the batteries in the timer are OK ( will light up if they are not). 4) Check high level switch is moving freely.
There are offensive smells and odours coming from the ARID Gardener.	1) Drain all the water from the unit from the end and bottom plugs. 2) Thoroughly clean all filters. 3) Thoroughly clean the tank.
The pump is not keeping up with the water flowing in.	1) Check you have enough drippers on your system. 2) Check the outlet filter and ensure it is clean. 3) Check you are not pumping up a hill higher than 2 metres above the ARID Gardener.

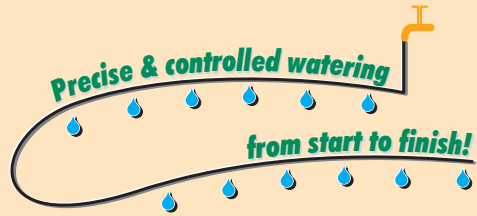


ALL-TERRAIN PC DRIPPERS

Holman's new range of All-Terrain PC drippers offer a fantastic way of delivering the correct amount of water to your garden. The All-Terrain range includes "PC", or Pressure Compensating. PC is a feature where a regulated rate of water is emitted, regardless of varying water pressure or distance from the tap. They basically all operate the same!

PC helps take the guess work out of setting up an irrigation system. Providing you have the minimum operating pressure, (100 kPa), simply select the most suitable dripper flow rate to match your plant(s) or garden bed and start watering.

WHAT IS PC? (PC = PRESSURE COMPENSATING)



PC provides a constant drip rate regardless of varying water pressure or distance from the tap!

PRE-SET DRIP RATES:



HA7002



HA7004



HA7008

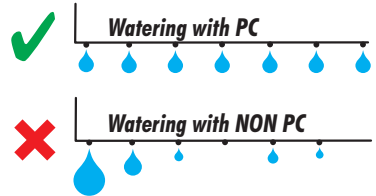


ELBOW ON SPIKE

HA7022 (2lph)
HA7024 (4lph)
HA7028 (8lph)

TEE SPIKES

HA7012 (2lph)
HA7014 (4lph)
HA7018 (8lph)



SUITABLE PLANT TYPE GUIDE

	NATIVES	2		VEGETABLES & SEEDLINGS	4
	HERBS	2		AZALEAS & BEDDING PLANTS	4
	ORNAMENTAL GRASSES	2		SHRUBS & CITRUS	8
	ROSES	4		LARGE SHRUBS & TREES	8



Use the suitable plant type guide as a help to select the best dripper suited to your garden.





holmanindustries.com.au

ALL-TERRAIN PC DRIPPERS

HOW TO INSTALL PC DRIPPERS

PRESSURE COMPENSATING DRIPPERS

Domestic irrigation systems are generally built using either 13mm or 19mm Low Density LD poly pipe. This easy "push together" system of plastic barbed fittings, is the structure for the All-Terrain PC drippers to connect into. Simply branch off from the pipe using 4mm barbed fittings and flex tubing.

The Pressure Compensating (PC) drippers provide a constant, pre-set drip rate. Each dripper emits a pre-set amount of water per hour, "regardless" of the tap water pressure, distance from the tap or the slope of the garden landscape. **It's never been easier to set up a drip system!**

The All-Terrain PC drippers, as the name suggests, operate "evenly" over varying heights and distances. Example: Two PC drippers on the same water supply. The first 2 litre per hour (lph) dripper is in a hanging basket at a height, this will emit the same amount of water per hour, as a 2lph dripper down in the garden bed at ground level or lower.

INSTALLATION:

1. Ensure the water supply is turned off.
2. Install a filter at the start of the system to stop any dirt or debris from entering the irrigation.
3. Punch a hole into the existing water supply line, suitable for a 4mm barb.
4. a) Push in a 4mm take-off adaptor.
 (Adaptors are used to tap into the water supply & allow the flex tube to connect) OR
 b) Push in the All-Terrain PC dripper itself.
5. Attach a length of 4mm flex tubing to the take-off adaptor, and the other end to the PC dripper.
6. Layout the flex tubing & locate the dripper at the plant. We recommend a maximum:
 - 12 x PC drippers (2lph) at 1 metre spacing,
 - 10 x PC drippers (4lph) at 1 metre spacing, and
 - 7 x PC drippers (8lph) at 1 metre spacing. (This recommendation is the same for the Tee Spike)
7. Drippers on spikes are able to be anchored directly into the ground. The individual drippers (unless inside a water tube) may use the Universal Drip Stake (HA5100) to anchor. If not anchored, the dripper may move under water pressure. Now your ready to water!

MAINTENANCE:

The All-Terrain PC Drippers are self-flushing, and basically maintenance free. A small amount of water is purged out every time they start up to keep the outlet free from blockages & debris. The top cap can still be removed if cleaning is required. It is very important that the silicone baffle is not lost, & is replaced back into the dripper before the cap is screwed back into place.

✓ **SAVES WATER!**

✓ **SELF FLUSHING**
Rubber diaphragm protects against insects & blockages.

✓ **COLOUR CODED FLOW RATES**
Choose from 2lph, 4lph & 8lph

✓ **PRESSURE COMPENSATING**
PC drippers will operate evenly on All-Terrains!

✓ **ANTI INSECT**

✓ **4mm BARBED CONNECTION**
All drippers connect to 4mm flex tube with a 4mm barbed end.
NO ratchet clamps are required!

✓ **IDEAL FOR VARYING WATER PRESSURE**

✓ **SUITABLE FOR LONG DISTANCES**

✓ **SUITABLE FOR SLOPING SURFACES**

MAXIMUM RUN LENGTH(S):
2 lph = 12 Metres
4 lph = 10 Metres
8 lph = 7 Metres

RECOMMENDED OPERATING PRESSURE RANGE:

100 - 350 kPa



PC CHECKLIST:

- Pressure Reducer
- Filter
- Universal Punch
- 4mm Flex Tube
- 4mm Fittings
- All-Terrain PC Drippers
- Poly Pipe Cutter
- Universal Micro Stakes
- Poly Pipe & Fittings

PIN 0150P3083 REV 01

www.holmanindustries.com.au



GUARANTEE

The manufacturer Guarantees to the original purchaser that any product supplied by the manufacturer will be free from defects in materials and workmanship for a period of one year from the date of purchase. Any product found to have defects in material or workmanship within the period of this Guarantee shall be repaired or replaced by the manufacturer FREE OF CHARGE.

The guarantor does not guarantee the fitness for a particular purpose of its products and does not make any guarantee, expressed or implied, other than the guarantee contained herein. The guarantor shall not be liable for any loss from use of the product or incidental or consequential damages including damages to other parts of any installation of which this product is part.

The guarantee shall not apply to any equipment which is found to have been improperly installed, set up or used in any way not in accordance with the instructions supplied with this equipment, or to have been modified, repaired or altered in any way without the express written consent of the company. This guarantee shall not apply to any batteries or accessories used in the equipment covered under this guarantee or to any damage which may be caused by such batteries.

If the ARID Gardener develops a fault, the product or panel must be returned in adequate packing with:

- 1) A copy of your original invoice.
- 2) A description of any fault.

It is the purchasers responsibility to return the controller to the manufacturer or their agent by prepaid freight.



HOLMAN INDUSTRIES



HEAD OFFICE / SERVICE

463 Scarborough Beach Road
Osborne Park, WA 6017
Tel: +61 8 9204 1011
Fax: +61 8 9204 1013

MELBOURNE WAREHOUSE

145 Northcorp Boulevard
Broadmeadows, VIC 3047
Tel: +61 3 9359 9822
Fax: +61 3 9359 9833

Email: sales@holmanindustries.com.au
www.holmanindustries.com.au