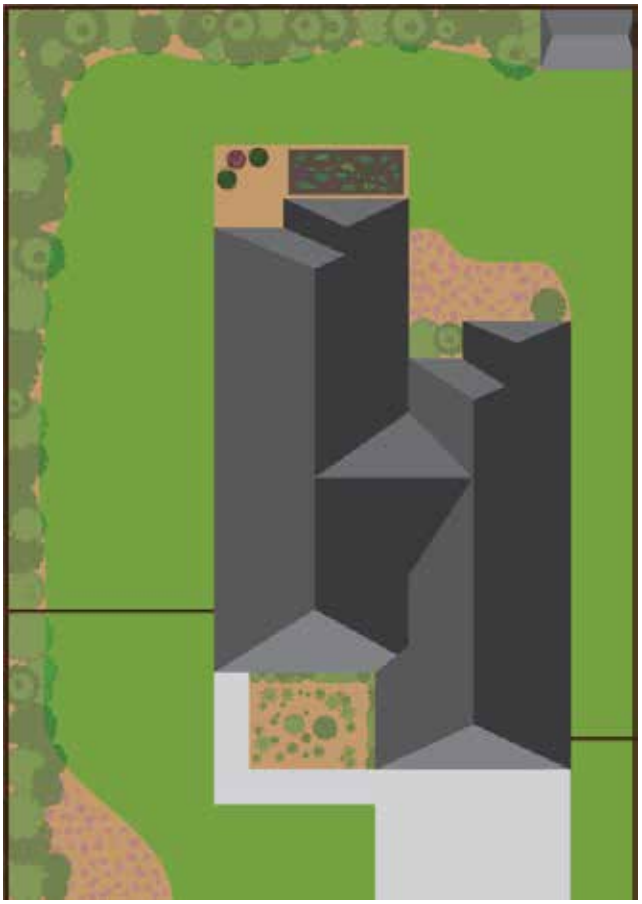
Step 1: Plan your area

Draw a plan of the area that you want to irrigate, to scale. This should include anything that may affect the irrigation process. The house, boundaries, gardens, fences, decks, driveway, etc



Detail the taps, water supply and where you would like the controller to be. You could use a title plan, Google earth, Google maps, or a landscaping plan as a basis for your plan.

If you haven't got any of these available, drawing it on graph paper is a great way to do it.

Step 2: How much water do you have

Firstly choose the tap you would like to use, fill a bucket with the tap on full and time how long it takes to fill, turn this into litres per minute. A rule of thumb is to use a design flow that is half of what you have measured.

(60 / Time in seconds) x bucket size in litres

Lets say you filled your 10 litre bucket in 15 seconds.
Time = 15
Litres = 10
So through the equation we have
60 Divided by 15 = 4
4 x 10 = 40 litres per minute

Max L/pm for our irrigation is 50% of this therefore 20 L/pm

The above rule of thumb is not accurate and it is possible that your water supply may supply more flow at operating pressure. We recommend using 50% of your flow test when sizing the zones. If you decide to use this rule of thumb it is advisable to test your biggest zone flow with the actual sprinklers to ensure it works before you install, so adjustments to your design can be made before laying the lines in the ground.

It is also likely you may be able to have bigger zones, so doing a proper pressure/flow test could easily pay for itself.

Check out our Pressure/Flow test kit

Step 3: Choose how to irrigate

You need to go through the options of how you want to irrigate and what you want to irrigate, Have a look below to see the standard types we use in New Zealand

Lawn pop-ups

Standard New Zealand lawns we recommend three pop up sprinklers:

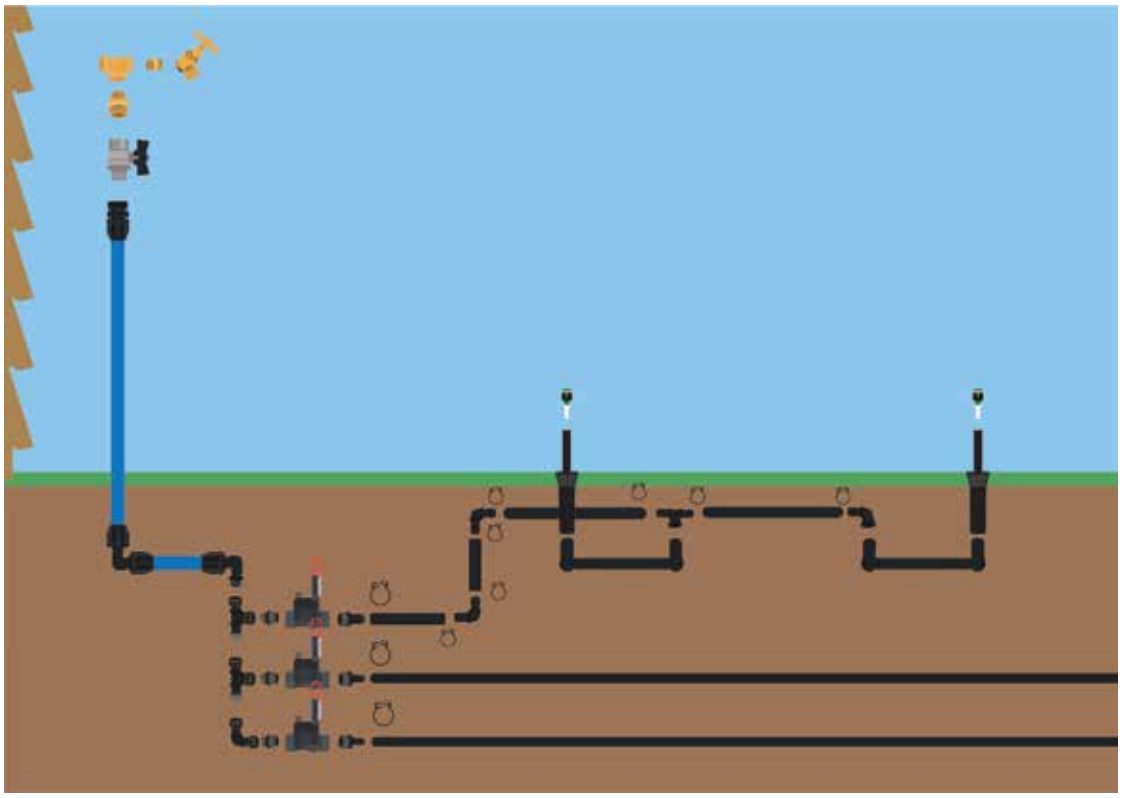
Hunter MP Rotator and the Hunter Pro Spray Pop up
- These are spaced from 1.5 to 10 metres.

Hunter PGJ sprinklers
- These are spaced from 4.6 to 11.3 metres.

Hunter PGP sprinklers
- These are spaced from 9 to 14 metres.

To make the design simple, the majority of you should go with the Hunter MP Rotators. Check out the link to the MP Rotator Design Guide and the Sprinkler Layout Design Guide.

With those who are looking for cheaper options be careful as you can install spray pop up sprinklers, the spray nozzles are about a third of a cost of the MP Rotators sprinkler nozzles but they can use three times as much water and end up costing you more as you need more pipe work, more zones and valves and bigger controllers. The cheaper sprinklers are rarely a better priced option in the full scheme of things.

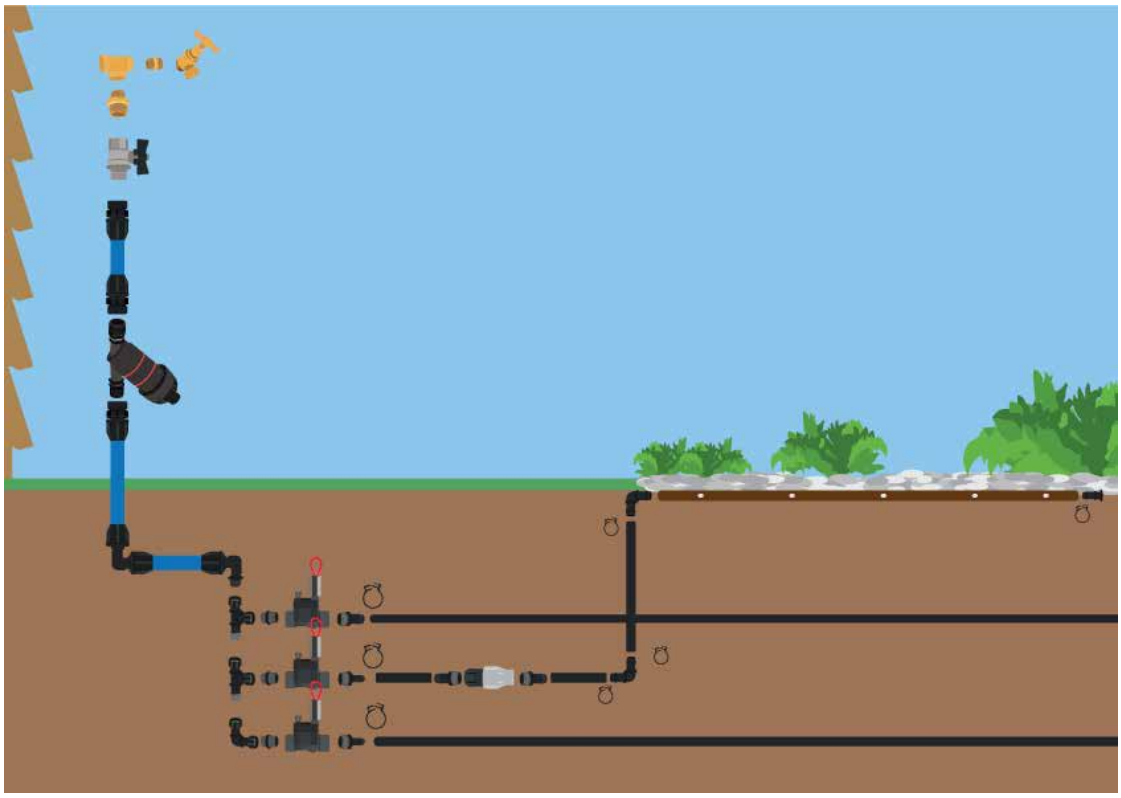


Low maintance garden

These are usually best irrigated with drip irrigation, we find the Netafim Techline dripperline is the best option.

It is easy to install, you just snake it through the garden ensuring all plants are close to the dripperline at about 40cm spacing, depending on soil. Dripper are spaced every 30cm and spacing of the dripperline is dependent on the soil type and size of the plants root zone

Dripperline does a good job of irrigating. With no evaporation it delivers the water directly to the roots, it is low maintenance and should last decades without needing maintenance, as long as the water is filtered and a pressure regulator is used.



Potted plants

They are often irrigated with drippers on spikes or shrubblers. Getting water to your pot plants is hard work, normally done with 4mm tube up the side of the pot or up inside the pot.

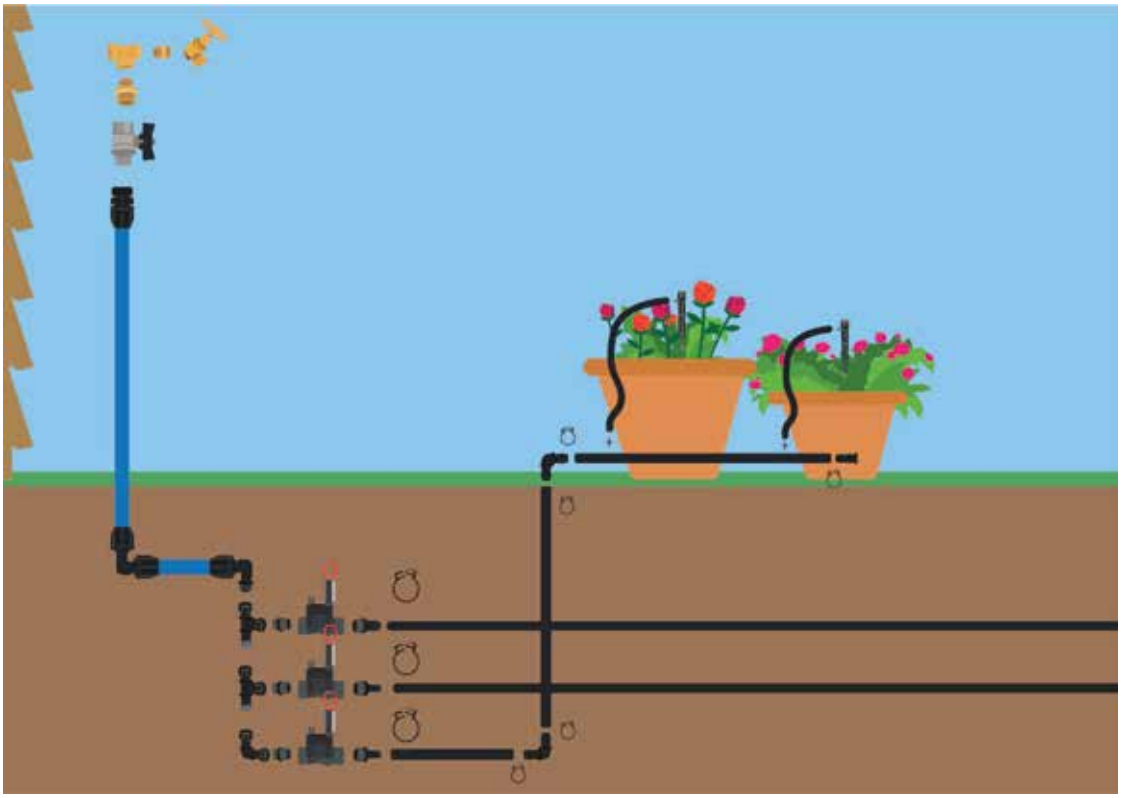
Shrubblers

- Use lots of water but are easily adjustable so are a good option for most potted systems.

Drippers

- Lower flow rate and can work well in small pots or if you have a lot of pots.

Always irrigate your pots on a separate zone from other parts of your garden. You may want to install a soil moisture sensor in the pots to help with operating them automatically.



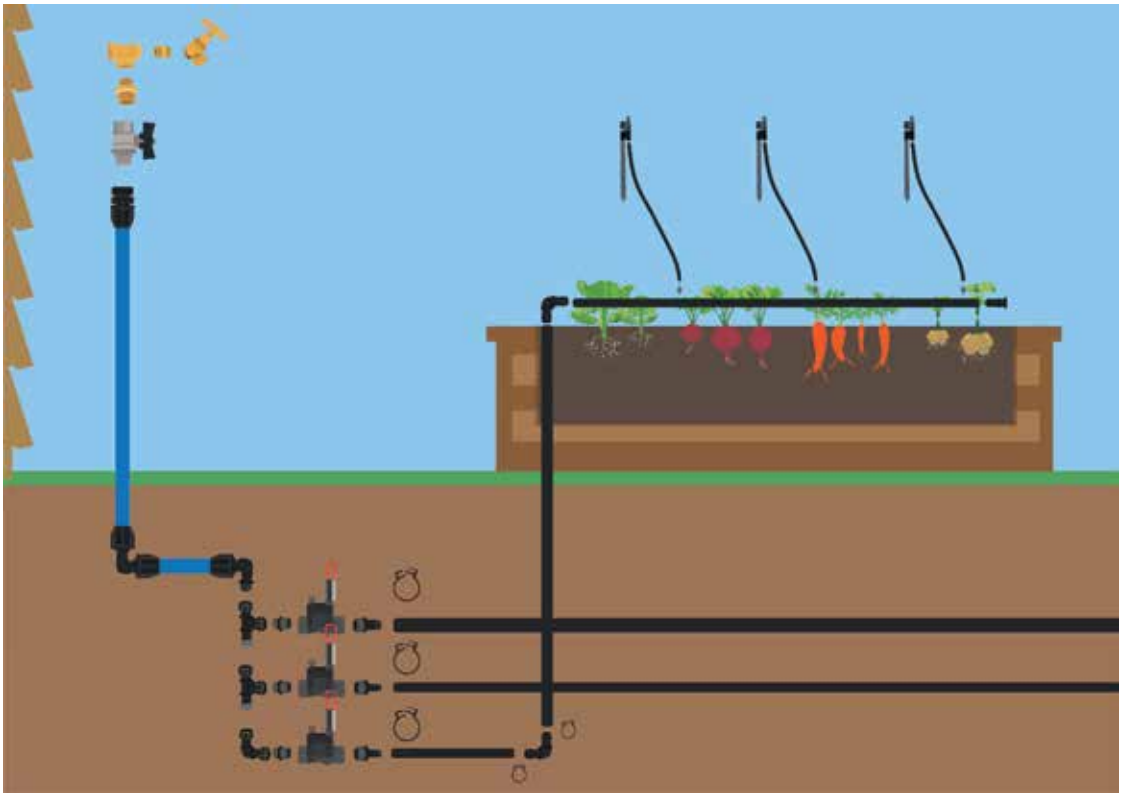
Veggie/Flower bed Gardens

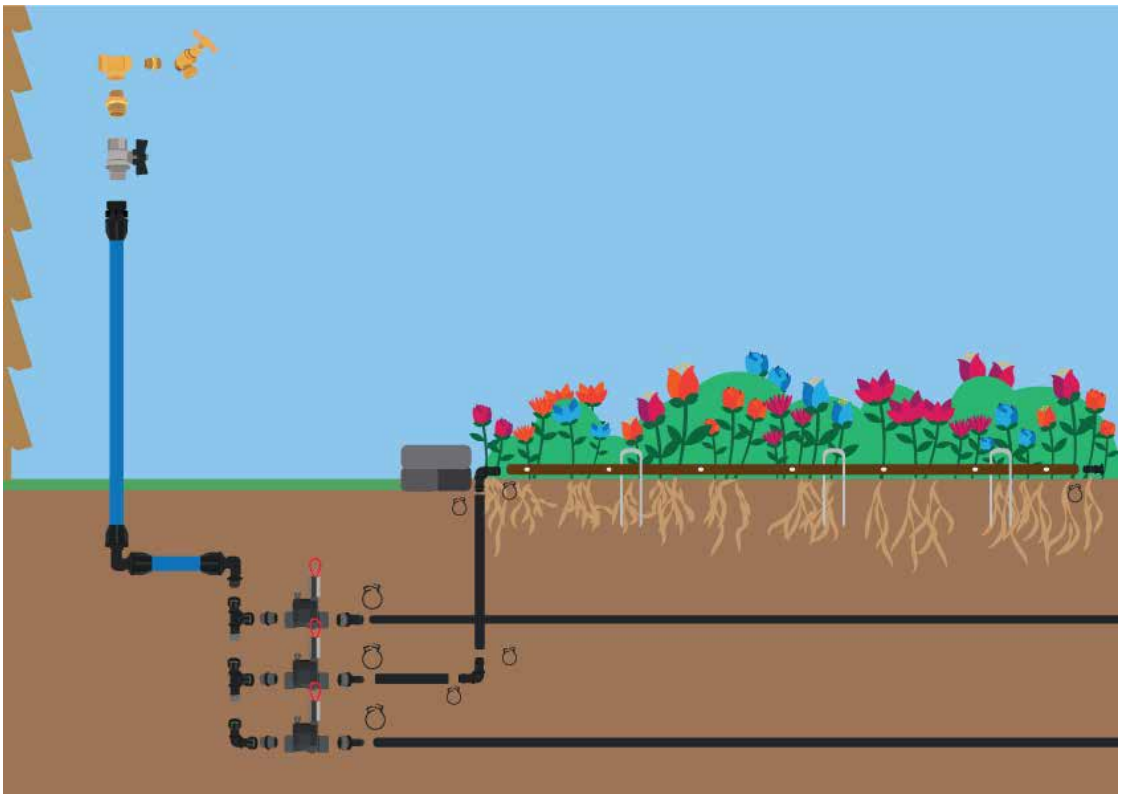
- Are commonly used in garden boxes or smaller garden beds. There is a huge range of these sprays. You will need to select the spray that has the spray distance and coverage for your garden.
- For even coverage it is wise to have these sprinklers set up in a 'head to head' fashion.

- You can use larger sprays, these sprays commonly placed on 15mm poly risers and have throws of up to 5.5 metres delivering a fine spray, a head to head spacing is wise.
- If you have larger flower beds that are densely planted this option is great.

- If you have a large garden needing a throw of 5 to 10 meters.

- Like low maintenance gardens, Techline dripline can be used in flower beds successfully. The more dense the planting and smaller the plants the closer the dripperlines need to be placed together, as close as 30cm dripperline spacing.





Step 4: Draw it up

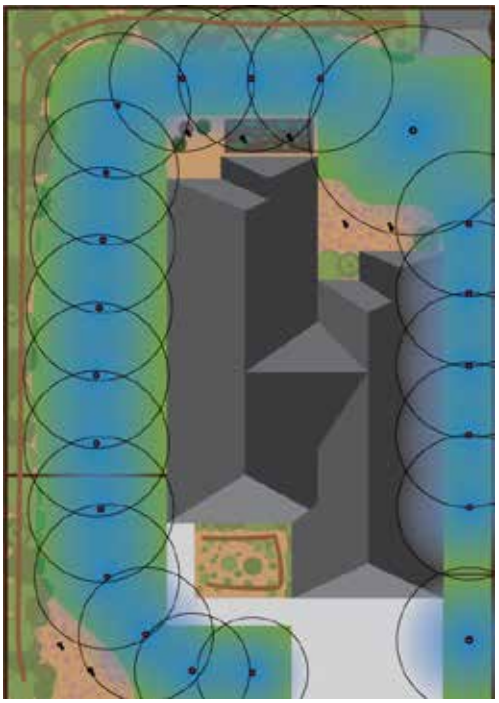
Draw on your plan the positions of the sprinklers, drippers, dripline. You will need to understand what spacing to have these items at and you can read our sprinkler spacing details,
Or contact us and we can design it all for you.

We have created two examples of a sprinkler layout that goes through the stages of planning. One good floor plan that covers as much landscape with even coverage, and one floor plan that covers the same area but with an uneven water coverage.

Below is an example of a sprinkler system that is well laid out with even water coverage in a 'head to head' layout. With one that is poorly laid out with an uneven water coverage

Even Water Coverage Example

Uneven Water Coverage Example



Pop-up Sprinkler Spacing

Pop up sprinkler spacing

The rule for spacing your pop ups is summed up in one simple phrase, "Head to head". What this rule means is that your sprinkler should throw from itself to the next sprinkler.

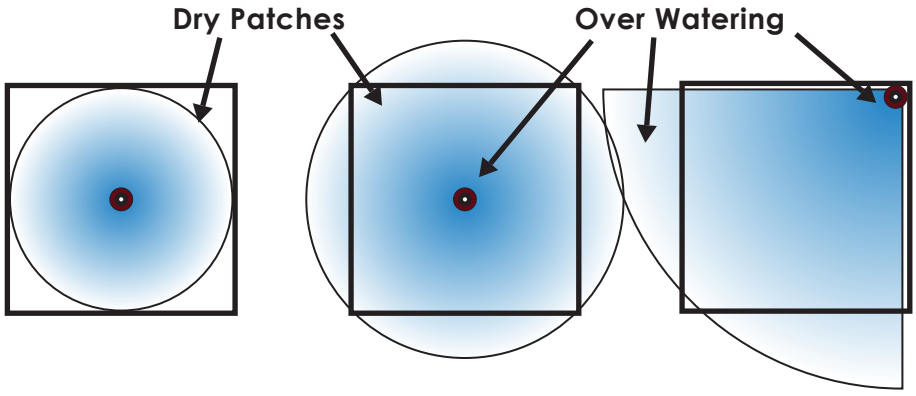
This is something you should always try to achieve as this will give you a nice uniform coverage of water.

Sprinkler Positions

There are two main types of spacing for sprinklers, triangular or square, try and follow either of these options and it will keep things uniform and tidy looking.

Below are some diagrams of sprinkler layouts on typical lawn shapes.

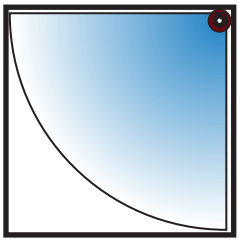
Here are a few examples of how Pop up sprinkler spacing works.

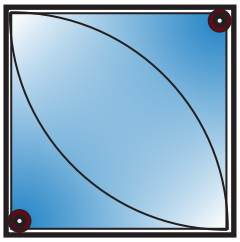


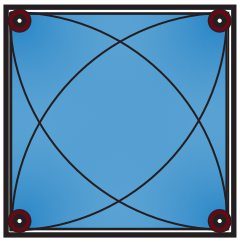
Uneven Coverage

The above examples show what not to do for irrigating an area. The areas close to the sprinkler receive more water than further away from the sprinkler. This is a common mistake and the end result is uneven grass growth due to over watering and under watering.

Part Coverage





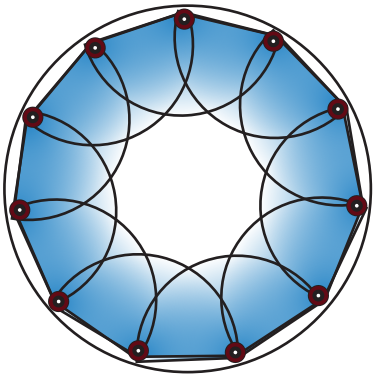


Full Coverage

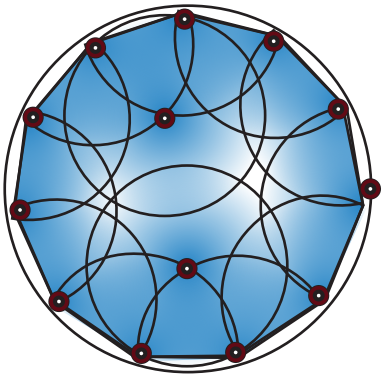
Even Coverage

These three examples show the steps to how we recommend you should provide coverage for your lawn. By starting in the corners and working around and using the head to head method you can see that through the steps we get to a fully covered lawn with little to no over throw. This method will ensure that the lawn gets and even coverage and saving money on the amount of water used. It may cost more initially having more sprinklers put in, but will save you money in the long term, as well as making sure your lawn stays healthy and even.

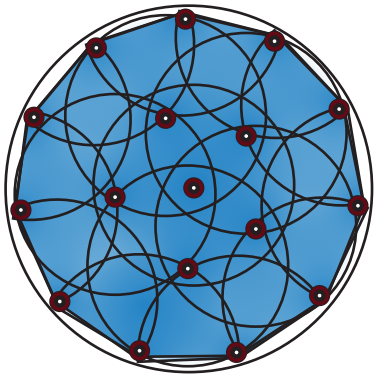
Not Even
Low uniformity



Not Even
Low uniformity

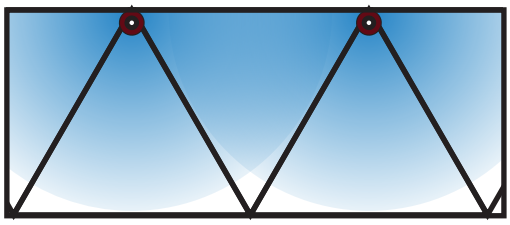


Even
High uniformity

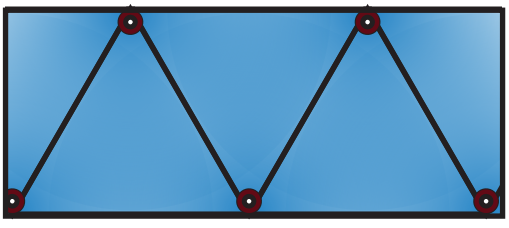


This example of a large circle area being laid out head to head for maximum coverage and efficiency of water

Uneven Coverage



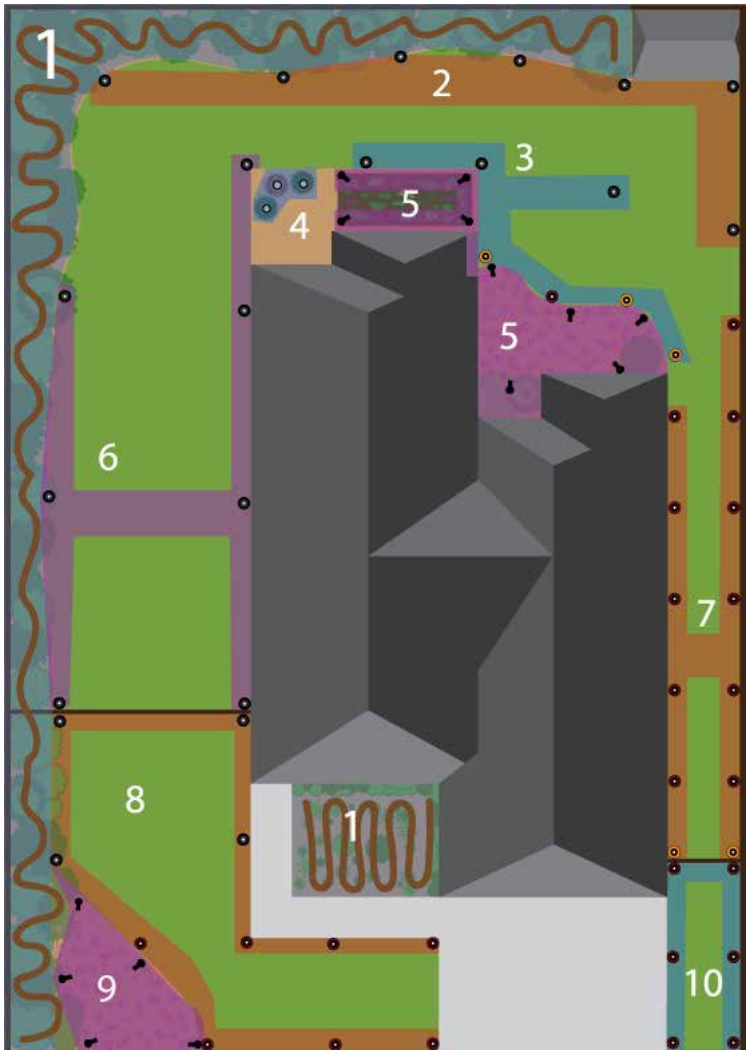
Even Coverage



This is another example of how to cover an area using a triangle pattern. The disadvantages to this though are possible over throw when trying to close off at the end

Step 5: Break the plan into zones

Write on your plan the flows of the outlets. You will now need to split your plan into irrigation zones. Your zones need to be split into the different types of irrigation types, sprinklers can not run in the same zone as drippers or dripline, products with different water application rates should be on separate zones. Have a look at our zone split diagram.

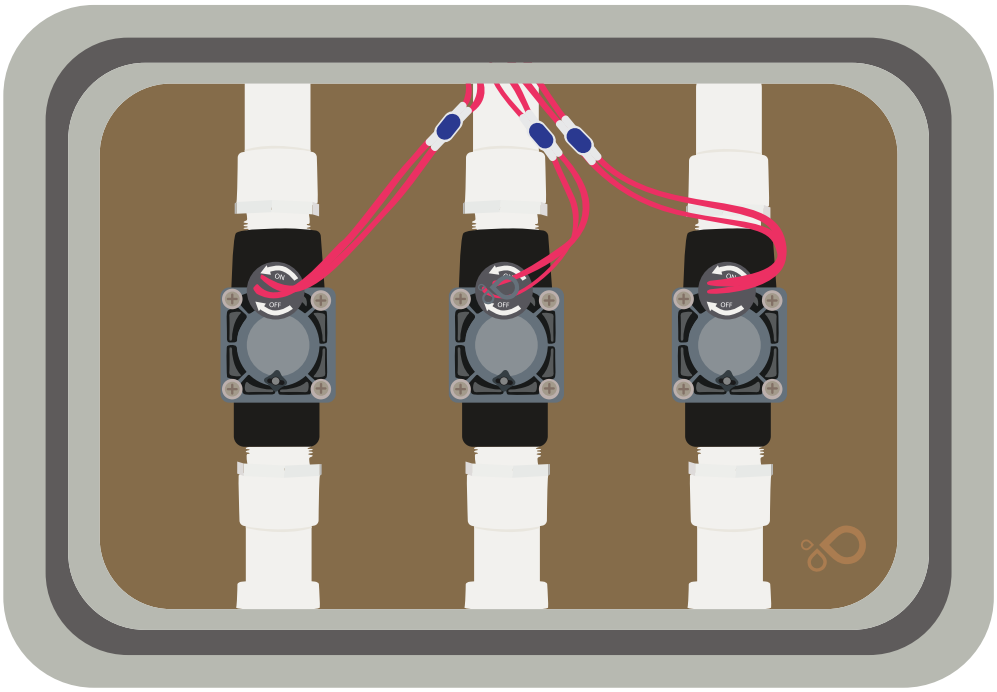


Once you have zoned the area you will need to check that flow rates don't exceed your design flow. If it does you need to split your zones further so the total zone flow rate matches what the water supply is capable of, as per step 2.

Step 6: Valves and Control system

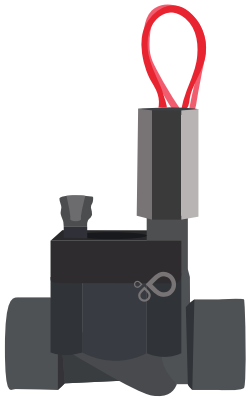
Add your valves into your system, consider what is the best location for ease of access, cost of pipelines and control cable, size of valve box and maintenance of the system. Most systems you should group all the valves together closes to the tap connection, however if there is good savings in pipe to spread them out through the system and take wiring from the controller, this works well to.

Check out our **valve layout options**



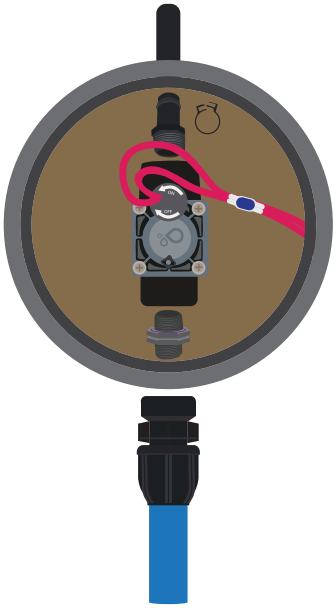
Hunter Solenoid Valve

The standard solenoid valve that we recommend is the 25mm solenoid valve by Hunter Industries that is perfect for your landscape and household sprinkler systems



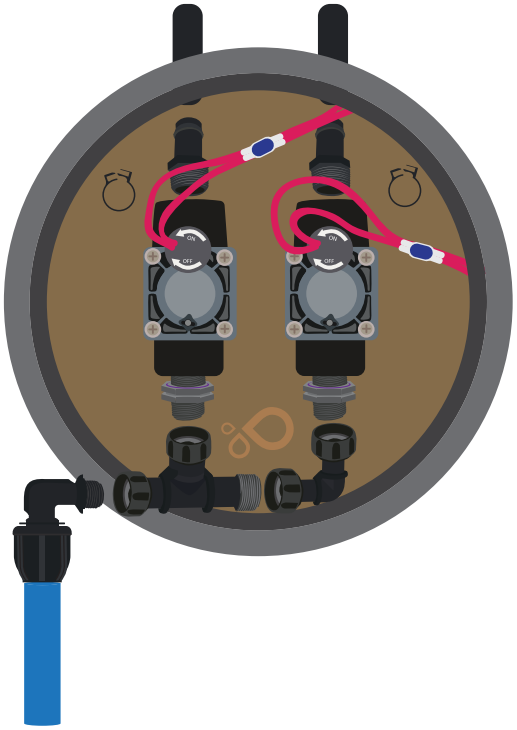
VB8

The Valve Box 8 can easily fit 1 valve.



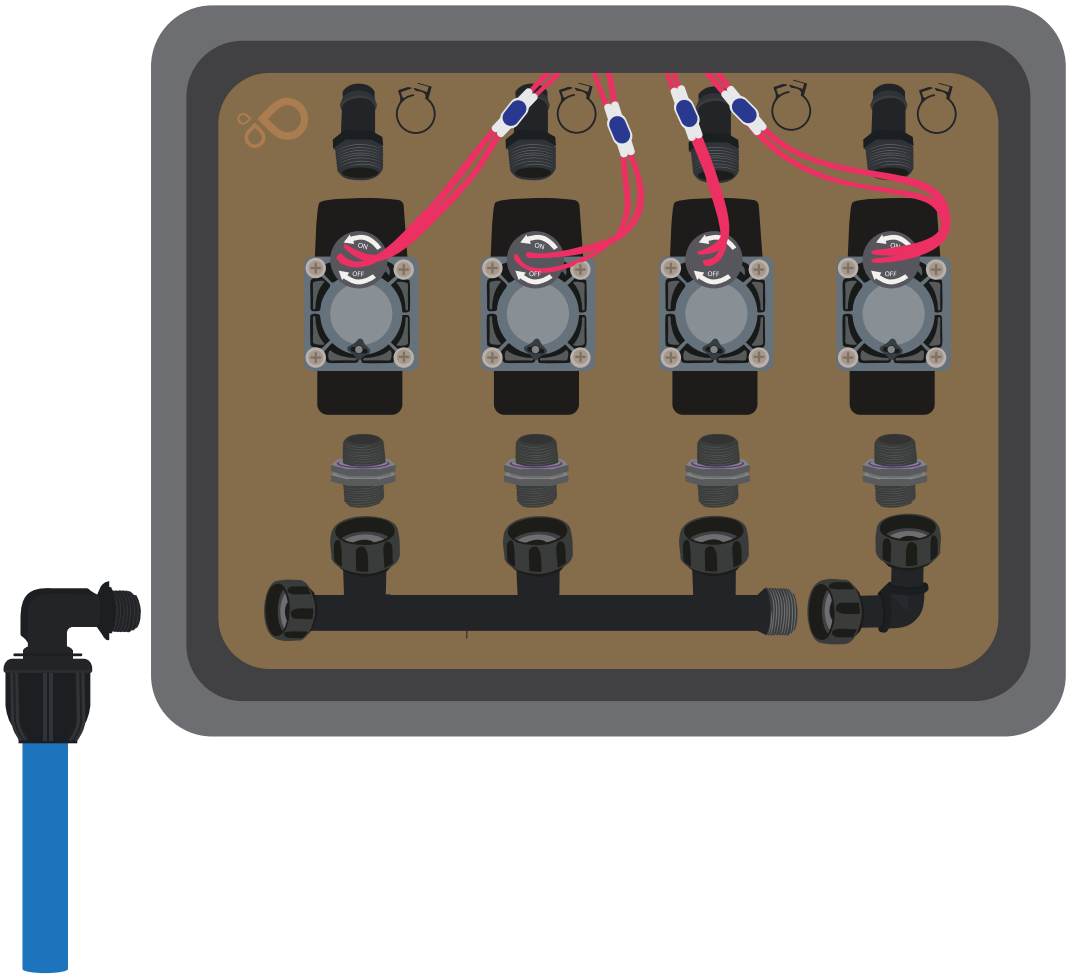
VB10

The Valve Box 10 is a good size for a small project. This valve box can easily fit 2 valves.



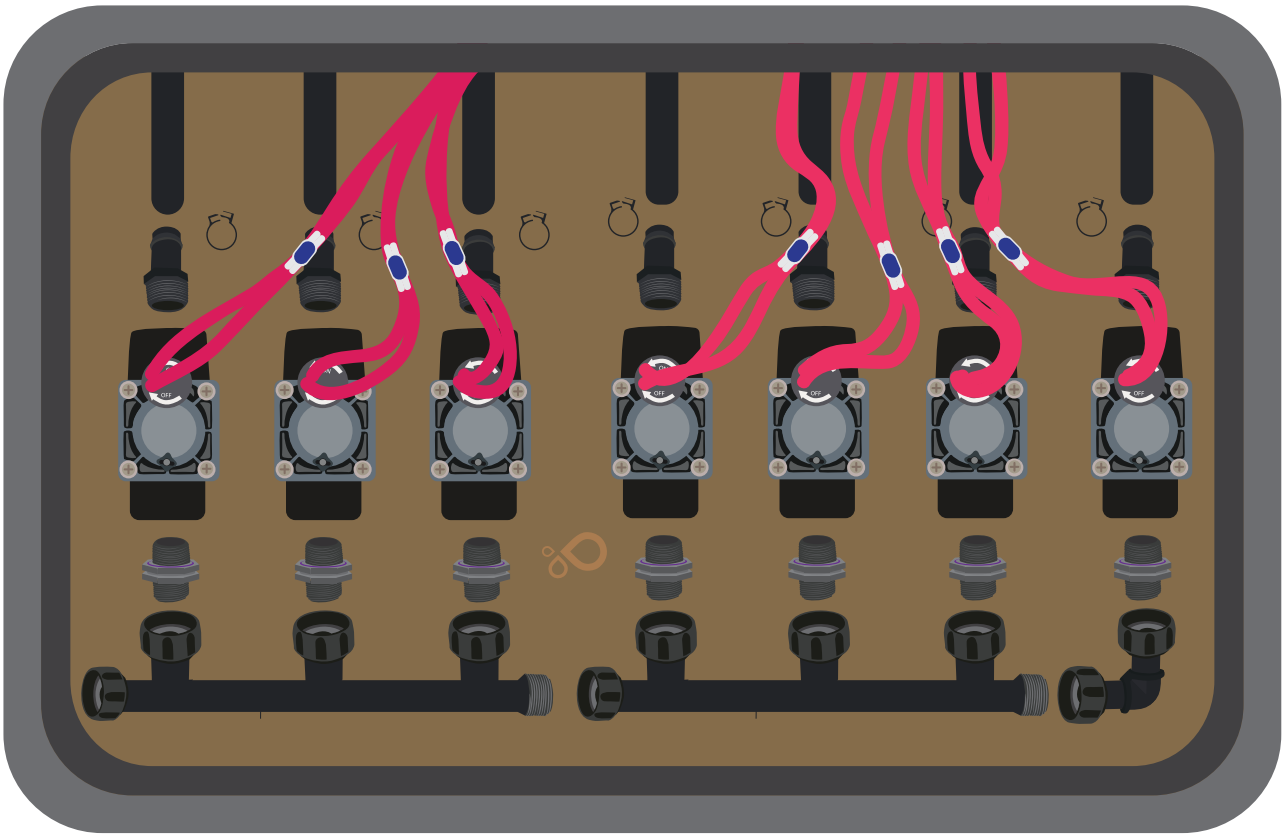
VB11/VB12

The Valve Box 11 is the standard size for a household and will fit for most landscape projects. This valve box can easily fit 3 valves but can manage 4.



VB14

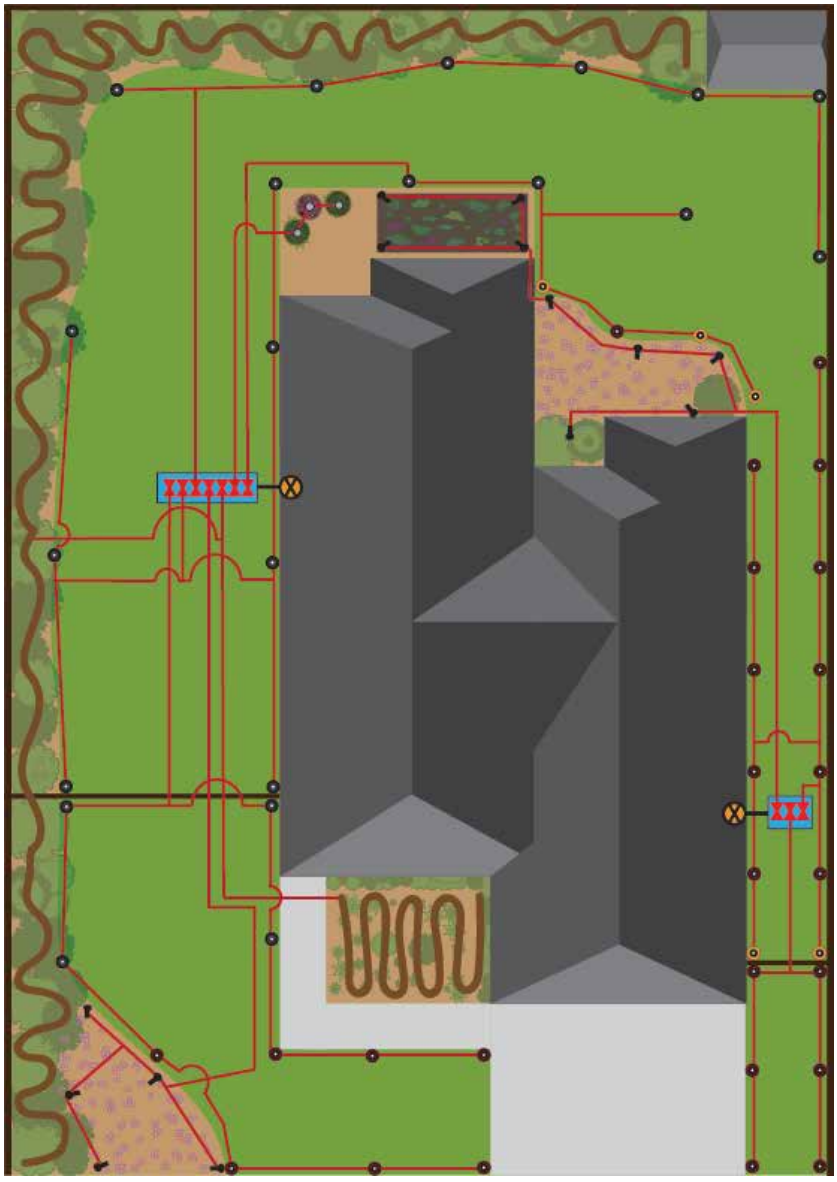
Larger box that can hold up to 7 valves comfortably, suitable for larger household projects.



Step 7: Draw in the pipelines

Pipe sizes, for town mains supply system is 19mm for sprinklers, and 13mm for drippers and drip line. 100 meters of dripline in a single run maximum (500 litres per hour). For a pumped system you need to talk with one of our experts.

Draw in Pipelines to connect up your sprinklers in the zones that suit the flow you have available. The zone pipelines link back to the control valves (solenoid valves), these are located normally close to the water supply but can be spread out around your garden and feed by a mainline pipe. See our pipeline layout.



Step 8: Landscape Controller Options

Irrigation Controllers are the brains of your irrigation system. They operate solenoid valves which turn on and regulate the flow of your irrigation.

Decisions to be made
1. Battery or plug in
2. How many zones
3. Programme flexibility you want
4. Wifi / Cloud connection
5. Indoor or Outdoor

Below are some of our common recommendations

You can go for an Orbit tap timer but these are restricted to flow of 16 litres per minute, but are the cheapest option in many situations.
1 - 4 Zones

The Hunter XC indoor and XC outdoor controllers are our biggest sellers, the price and quality is hard to pass by. The features they have take care of nearly every landscape system we come across, except they are not wifi capable.
1 - 8 Zones

The Hunter XCH and node controllers are the go to for battery operated controllers, the node is great if you don't have a wall or fence to attach a controller to.
XCH 1 - 12 Zones
Nodes 1 - 6 Zones

For the next level up the Pro C controllers if you have more than 8 valves and require some extra features.

Then there are wifi controllers, Hydrawise and Skydrop, these are varying features that you will need to understand what suits you the most.

1/ Battery (DC) or Plug in (AC)

For most residential systems the plug in controller is the cheaper and better option.

2/ How many zones

Chose a controller for the zones you need now and for what you might need in the future

3/ Programme Flexibility

For most people controllers will do everything you need but if you have some specific requirements you need to look into each controller

4/ Wifi / Cloud connection

We have a few choices here. The two best sellers are the Hydrawise and Skydrop

5/ Indoor and Outdoor

Controllers can be installed inside your house garage and shed or be installed outside. The selection of what you need can be based on

- Closest position to solenoid valves
- Easy access for operation
- Visibility
- Ease of installation
- Potential vandalism

Step 9: The installation plan

Go through our How to install help, so you can understand what equipment you need, the work you will need to do to install the system and if you are best to get help to do this.

Use the Toro, Rainbird, Hunter and Orbit installation manuals as reference. These manuals are for the American market, we use different pipework so click on our pipe network diagram to see the standard pipe fittings used in your system