



Tichmatic Systems Standard Set Up

Automatic Irrigation:

1. Controller and pump power supply off a dedicated power supply with RCD. Power load at 1 TO 2.5Kw load depending on pump size. Most of our state of the art new pumps are energy efficient requiring less than 1kW load, on average. In practice they use less due to variable speed that allows them to operate at optimum performance to meet changing system demand. This means they run at speeds to meet whatever water use demand you put on them, in general for irrigation that means pop up zones will use the pump at a higher demand rate than say drip lines and shrubler emitter for pots and planters or micro sprinklers for beds.
2. Multi function System Controllers with multiple stations to suit system size. These can be installed modules if the garden development is going to be gradual and additions are made as and when the developments occur. These controllers are the heart of the system and everything links back to them. The pump relay, the rain or moisture sensors, the system valves, any Rainwater harvesting equipment etc.
3. The pump relay is integrated for control via the System Controller through the system control cable which links up the system. The relay will have independent power supply and will start and stop the pump on command from the system controller.
4. The Rain Sensor or Moisture Sensor ensures that watering occurs only when necessary at pre-set regulated threshold. This is also directly connected to the controller and passes information on precipitation or moisture content to the System Controller, which analyses the information to the set threshold and will stop the system watering if enough rainfall has fallen or the moisture in the soil is above or within the set threshold. When watering conditions return the sensors send that information to the controller which then automatically resumes watering schedules as programmed.
5. Multi core communication cable or two wire cable for decoder system to link up all system controls to System Controller, namely zone solenoid valves, master valves, float level control, rain or moisture sensor, pump relay system, mains or rainwater automatic switch, any Rainwater harvesting equipment. This is all system dependent, some systems will not have all of these, but most of them.
6. Solenoid valves assemblies is custom boxes with drainage point for winter service. These will always be in the Auto position when the system is live. They are connect through the system control cable with 3m water proof connectors or similar. It is very important that the polarity of these as with everything else is correct otherwise the will not open as they will not receive the controller command.

7. Mains water supply with non-return valve and air gap for compliance with WRAS regulations on backflow contamination prevention. Air gap would be either float ball valve or float level control with tundish detail.
8. All systems must have a break tank to comply with back flow contamination prevention in compliance with WRAS regulations. Even if the pressure and flow rate is adequate to run the system. This is a regulatory requirement.
9. The tank will already have been sized if it's a bespoke system, but for pre-packaged systems, it is critical that you ensure the tank matches the system flow rates, thus the incoming main flow rates and the system top peak demand flow rates. Failure to do that can result in some parts of the garden not being watered even if the system is running. The controller will open the valves and close them, so if the tank runs out of water, the controller will still run a full cycle. This can be avoided easily by contacting us for guidance. In general the systems are already sized for average pressure and flow rate across the south east including greater London and Home Counties. The tank must have an overflow outlet that allows for visible alert to float ball valve or float level switch malfunction.
10. The system pump can be either submersible or external and will be sized to meet system demand at its peak with a buffer allowance.
11. The connection to the mains water supply to the system tank will normally be a 25mm MDPE pipe. The tap assembly will consist of a copper or galvanised tee, compression fittings, a non return valve, an isolation valve and tavlit manifold connections. The tap assembly allows for the tap to continue operating as always independent of the system.
12. The system main from tank, normally 32mm MDPE pipe must have an isolation valve on discharge connection assembly. It is fundamental that the communication cable goes wherever the system main pipe goes. The communication cable links the system together in the controller.
13. Control valve boxes should be installed in flower beds or somewhere discreet like in hedges bed, only in lawn when absolutely necessary. These will always be connected to the controller via the communication cable. The manifold valve assembly must always have a connection for compressed air for system drainage in winter. All communication cable connections should be 3M water proof connectors. All valve boxes should be the right size for the number of valves. Standard system valves are normally 24 volts, they should be in the auto position when system is live.
14. Lateral lines to watering zones will always start from the valve box and would normally be 32mm MDPE pipe, but can be 25mm for smaller systems. These are the pipes that provide the watering and to which all watering devices are connected such as pop ups, micro sprinklers, shrubler sprinklers, drip lines and drippers. The numbers of devices connected depend on the flow rates and size of the pump and feed pipe size. Our standard system will normally have pop ups at equal distances of 8.5m apart, drip lines at 3 lateral meters per square meter with emitters determining the number per zone to match pump discharge capacity. The same principle will be micro sprinklers and other types of watering modes on the system.
15. Sprinkler pop ups will be connected to the lateral line with a connection assembly consisting of pipe sized saddle with rubber seal, swing joint with thread tape on both ends of saddle side and pop up side. A manual hole must be drilled with a drill bit from 8mm up to 16mm after saddle is positioned and secured. The top of the sprinkler pop up must always be at lawn root zone.

16. Drip lines must be laid at 30cm apart in flower beds to ensure uniform even coverage. The drip lines will all be interconnected using barb fittings. Wherever there is a link going through a non-watering patch, it is standard at Tichmatic Systems to use a 20mm LDPE pipe with reducer barb fittings or 25mm MDPE with compression fittings.
17. All micro sprinklers are connected using 20mm LDPE pipe for ease of punching the essential holes with the custom punch. The distance between micro sprinklers is different for different nozzles.
18. Shrubber sprinklers and drippers are connected using LDPE 6mm pipe. These are generally for planter, pots and balcony style flower beds.
19. The lifting of turf is a critical element on aesthetics and is quite complex to ensure the colours and texture of turf is maintained. Turf lifting equipment must be set to lift at one inch below the turf root zone. The turf mush is cut to 2m length and rolled backwards so as to be able to roll it forward on re-laying it. Caution must be taken to ensure that rolls are retain exactly where there were removed.
20. Trenching machine must be set at one foot deep and maximum effort must be made to keep this distance as standard through the whole system lay out.
21. System pipes must be laid as straight as possible, and where main runs with communication cable this must be below the pipe or on the side.
22. Once pipes are in and watering devices installed, back filling must ensure all or almost all the soil returns where it came from. Thus when back filling, compact continuously at every 10cm of depth filled, this will ensure all the soil is returned to the ground and garden will not have points that are sagging after the system is installed.
23. Once you have backfilled is important to level the same depth used in lifting turf, once you have levelled you can then re-lay the lawn, rolling forward to ensure all rolls go back exactly where they were rolled off and at the same depth. Depending on how well the backfilling was, you can then use a compact to level the lawn.
24. Don't cut holes on the lawn, cut crosses above sprinkler heads to ensure they pop up.

This is an overview of the automatic irrigation system, should you need a project specific design, please get in touch through our Consultancy page.

