

What is *Drip* Irrigation?

Drip irrigation, also known as micro or low flow irrigation, stands out as an innovative, efficient, and eco-friendly watering system. This method precisely supplies water and nutrients directly to the plant root zone through point-source emitters, driplines, micro-sprayers, and other low-volume emission devices. By maintaining optimal soil moisture levels and balancing water and air, drip irrigation fosters healthier plants, reduces water loss from evaporation, runoff, and wind, and enhances growth and yields while minimizing weed growth, pests, and disease. Ultimately, this approach conserves water, a valuable natural resource.

Unlike other forms of irrigation, such as sprinkler systems, drip irrigation system efficiency can reach 90% and higher in delivering water directly to the plants root zone.

Stuart M. Spaulding, CLIA, *Training & Communications Manager at DIG Corporation.*



Straightforward System Design

For optimal system performance and longevity, an efficient design is crucial. Begin by creating a detailed drawing of the garden or site, illustrating the landscape layout, plant types, sizes, and soil characteristics. Consider hydraulic factors, including water source location and type, maximum volume, system flow rate, and static water pressure. Anticipate future additions to the landscape by ensuring the design has approximately 20-30% extra water capacity.

Seamless Drip System Connections: *The head assembly*

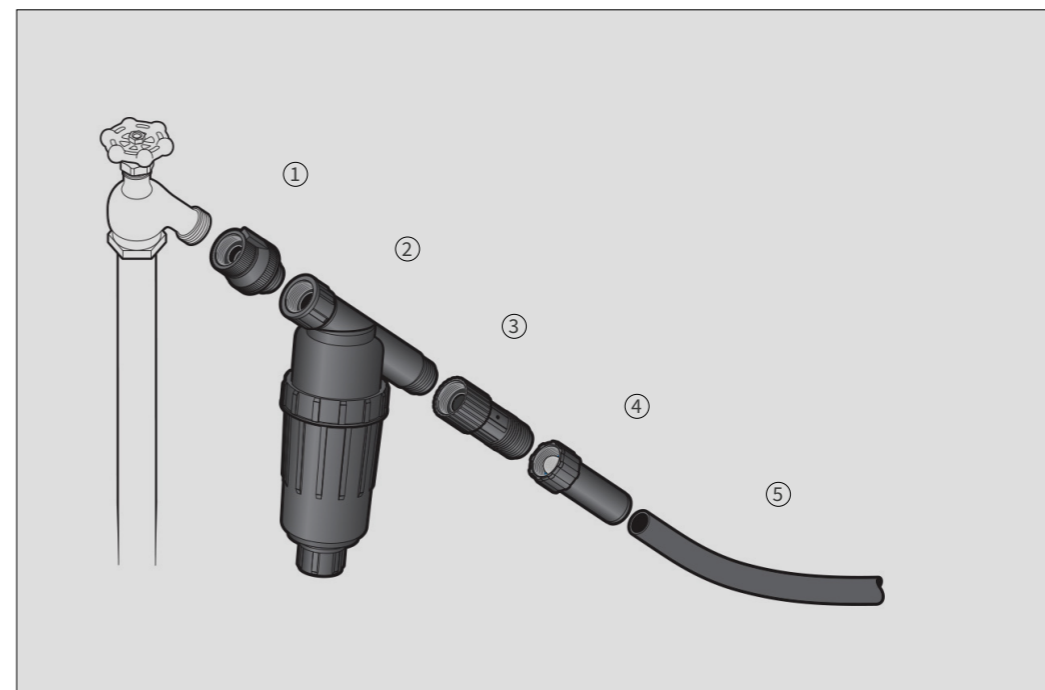


The head assembly: D45 Backflow preventer, D57A FHT filter, D46 pressure regulator, C34 Swivel adapter, tubing.

Effortlessly connect to your drip system with DIG's versatile solutions, accommodating hose bibs, anti-siphon valves, inline valves, sprinkler head risers, or rain barrels for gravity feed systems. At the crucial connection point, the essential "head assembly" includes a screen or disc filter along with a pressure regulator. This assembly easily attaches to hose bibs (hose thread types) or connects to manual or automatic valves (pipe thread types).

Adhering to local codes, certain water districts may require a backflow preventer or anti-siphon device. The recommended backflow device prevents contaminated water from re-entering the water supply. If using an atmospheric vacuum breaker, install it on the hose bib (hose thread) at the head assembly's start. For those incorporating a hose end timer, place the backflow device downstream to meet requirements and prevent device stress.

Protect drip emitters and micro sprinklers by installing the filter downstream of the backflow device. The pressure regulator, whether preset or adjustable, comes after the filter, reducing incoming pressure for optimal system performance. Consider the option of a one-piece, compact, pressure-regulating filter for added convenience.



The head assembly: ① Backflow device, ② FHT Filter, ③ Pressure regulator, ④ swivel adapter, ⑤ poly tubing

Drip Systems and Water Source Connections



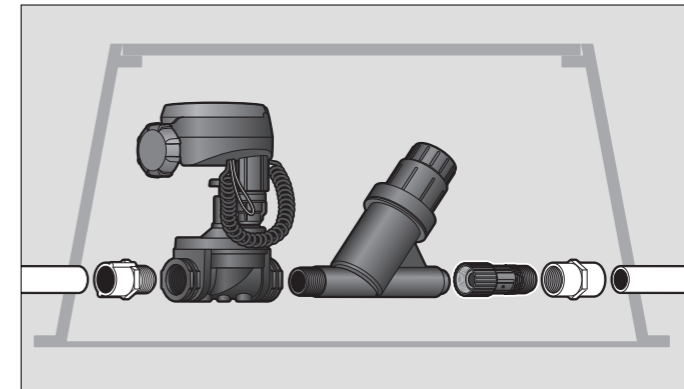
Stand-alone system starting from an outdoor faucet

Faucet connection: hose end timer, backflow preventer, FHT screen filter, pressure regulator, swivel adapter, tubing.



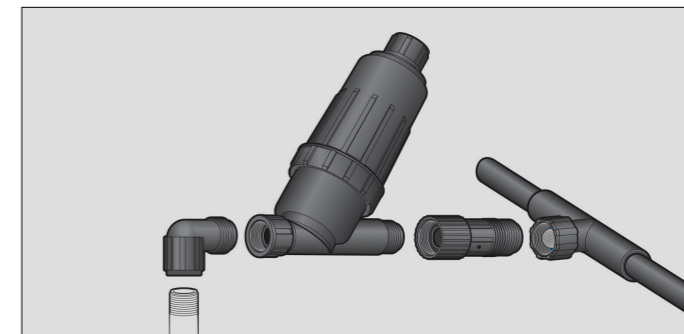
New irrigation installation

Starting from an anti-siphon valve: timer, filter, pressure regulator, tubing.



New irrigation installation

Starting from an in-line valve: timer, filter, pressure regulator, tubing.



Retrofit of an existing landscape sprinkler system

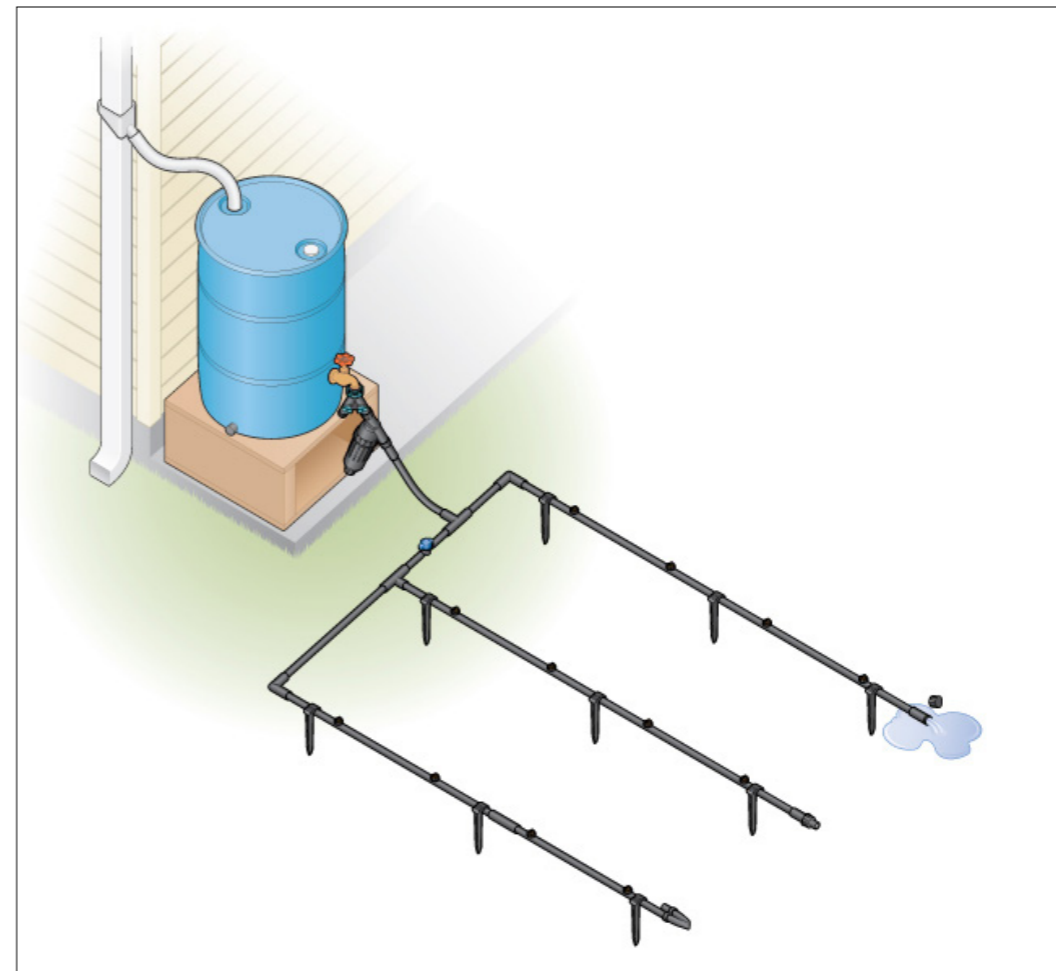
Retrofit: conversion elbow, filter, pressure regulator, swivel tee, tubing.

Water source: Key Considerations for Gravity Feed Systems

Numerous methods can be employed to initiate and establish drip irrigation systems, whether drawing water from a well or utilizing a barrel for gravity feed. Regardless of the specific setup, the fundamental components of any drip system remain consistent. Considerations such as the total flow rate of the emission devices and the available pressure persist across different drip system variations.

When deciding between a pump and gravity feed for your drip system, essential factors include the minimum operating pressure of the emission devices, total flow rates, and water pressure. These aspects play a pivotal role in ensuring the system operates efficiently. Notably, as the length of the laterals increases, the number of drip emitters used rises, and the flow rate of the emitters goes up, the demand for pressure also intensifies. It is worth noting that the sole dispensable component in this context is the pressure regulator.

For optimal performance in gravity flow systems, it is advisable to opt for non-pressure compensating drip emitters and/or utilize 1/4 in. dripline. This choice aligns with the specific requirements of gravity-fed setups, contributing to the overall effectiveness of the drip irrigation system.

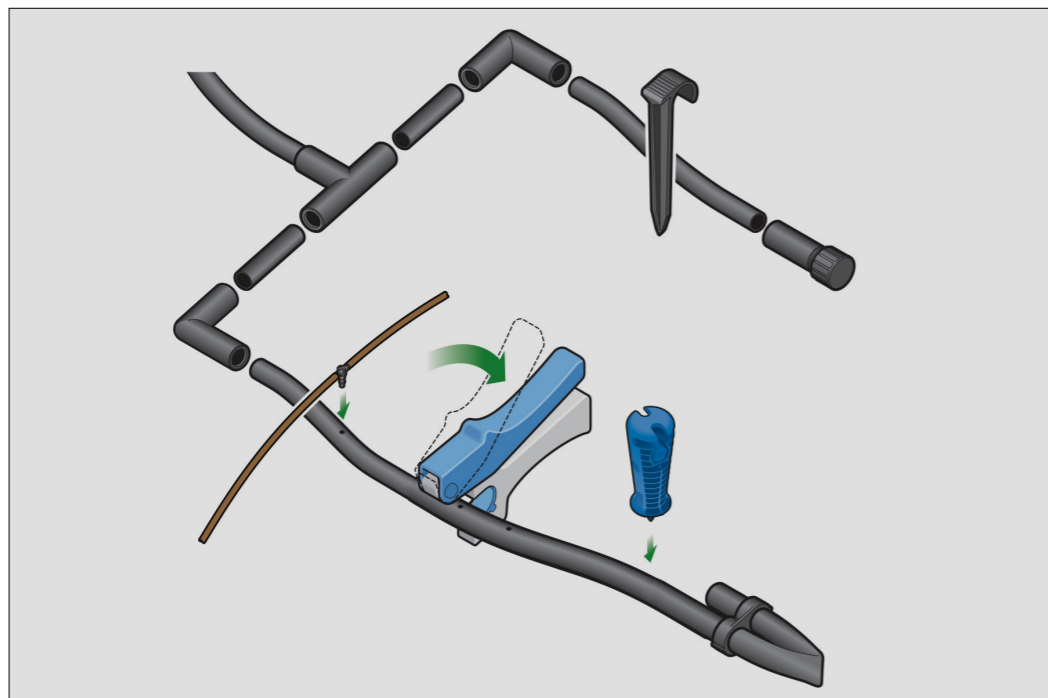


Gravity fed low pressure system starting from a rain collection tank or storage barrel

Rain barrel: Y-Hose splitter, filter, pressure regulator, 1/2 in. drip tubing, stakes, shut-off valve, compression fittings, non-pressure compensating drip emitters, hose-end closures.

Exploring *the distribution* network

Dive into the intricacies of the distribution network, a vital component in any drip irrigation system. The main distribution laterals, commonly constructed from PVC pipes, serve as the backbone of systems originating from anti-siphon or inline valves. Complementing these are the sub distribution laterals, typically crafted from polyethylene drip tubing, facilitating precise water delivery to individual plants.



Distribution network

1/2 in. and 1/4 in. tubing, 1/4 in. and 1/2 in. fittings, stakes, punches, hose-end closures

Within this network, you'll find a variety of essential components such as compression or barbed fittings, including tees and elbows, ensuring seamless connections. Accessories like hole punchers, plugs, stakes for securing poly drip tubing to the ground, and hose ends contribute to the versatility and functionality of the system.

In smaller-scale setups, main laterals often take the form of poly drip tubing, while sub laterals are designed using micro tubing. Understanding the intricacies of the distribution network is key to optimizing the performance and efficiency of your drip irrigation system.



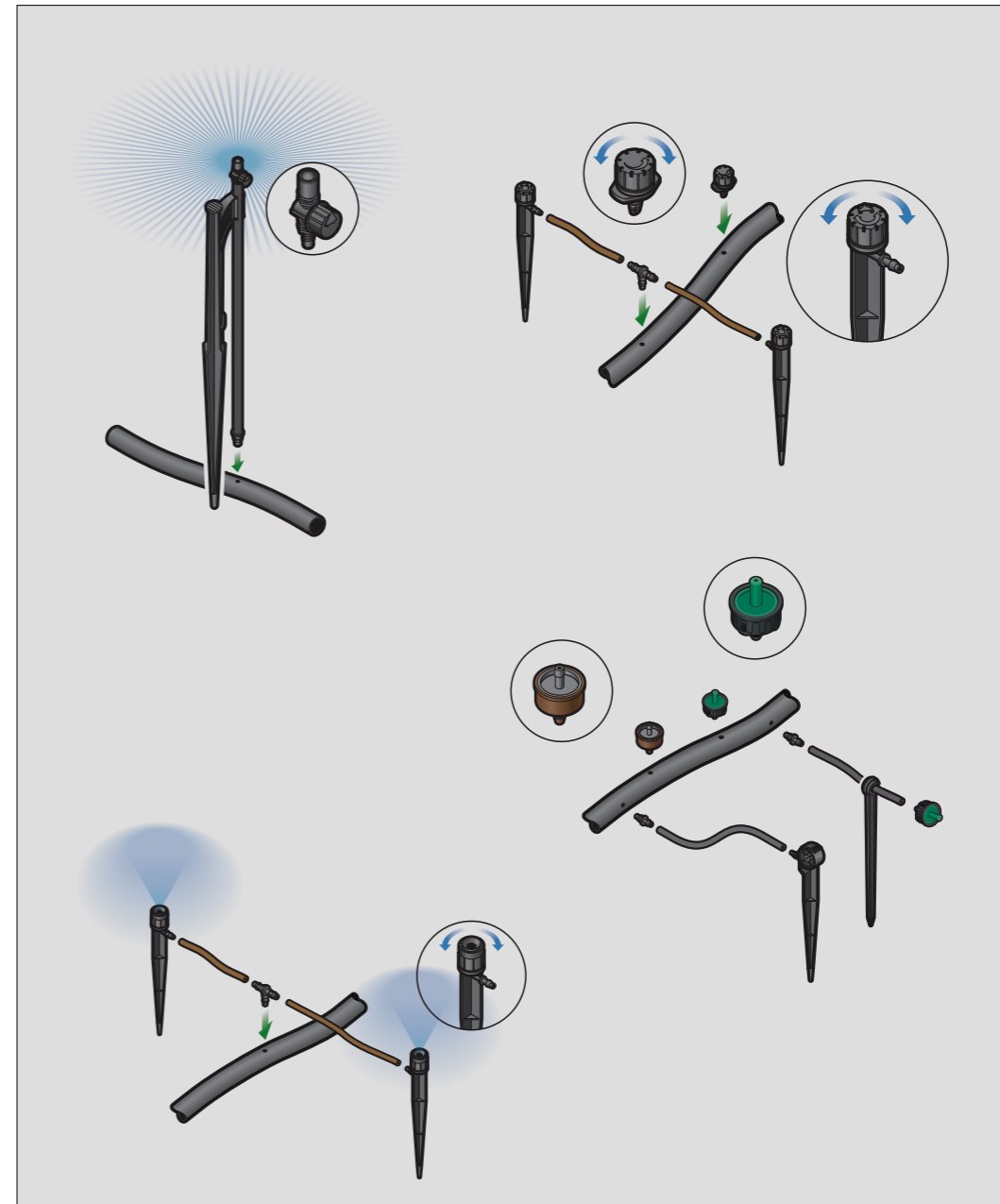
Distribution network 1/2 in. and 1/4 in. tubing, C33 - C35 - C36 - compression fittings, H80A - H82A - H84A

1/4 in. barbed fittings, P35B - R60 - R62B stakes, 16-035R - DPT punches, G79B goof plugs, F68B hose-end closure

The Vital Role of *Emission Devices* in Targeted Plant Watering

Emission devices, such as drip emitters, dripline, micro sprinklers, or micro sprayers, serve as the backbone of drip systems, ensuring precise water delivery to plants. The connection process involves punching a hole into the poly tubing using a dedicated punch tool. Drip emitters provide a range of installation options, allowing them to be directly placed into the poly drip tubing or extended with a ¼ in. barb and ¼ in. micro-tubing.

This flexibility in installation enables emission devices to be strategically positioned anywhere along the poly drip line, catering to the specific needs of the landscape. However, it is crucial to exercise caution and adhere to recommended product operating pressures to maintain the uniform distribution of water along the laterals. A comprehensive understanding of the intricacies surrounding these emission devices is fundamental to optimizing the overall performance and efficiency of your drip irrigation system, ensuring a thriving and well-nourished landscape.



Emission Devices

Drip emitters, micro sprayers, micro sprinklers, driplines, micro tubing



Emission Devices Adjustable micro sprayer on spike



Emission Devices Adjustable bubbler on spike



Emission Devices Mister on barb



Emission Devices Fogger on barb

Soil types and the right drip emitters

Soil characteristics, density, and texture play a crucial role in shaping the “wetting pattern” as water moves through the soil. In drip irrigation, water is applied gradually to the plant root, either through a single point source drip emitter or along the line using a drip line. The soil type guides the selection of the most suitable drip emitter flow rate and spacing. Water moves downward through the soil due to gravity and outward through capillary action, creating a wetting pattern unique to the soil type and the drip emitter flow rate.

WATERING FREQUENCY

Starting the drip system from 3/4 in. faucets or 3/4 in. anti-siphon valves typically yields ample water for home landscapes and gardens. Consult the table below to determine the frequency of running the drip system, ranging from once to three times per week based on location, season, and soil types. As plants mature, their water requirements may increase. In response, extend watering times and consider adding more drippers to effectively cover the expanding root area of maturing plants.



WATERING WITH DRIPPERS

Type of plant	Watering Legth	Hot Weather	Warm Weather	Cool Weather
Flowers, vegetables	30 min -1 hr	1-2 days	3 days	3-4 days
Small trees, shrubs	1-2 hours	1-2 days	2-3 days	3-4 days
Vines	3-6 hours	1-2 days	2-3 days	3-4 days
Medium trees, shrubs	5-7 hours	2-3 days	2-3 days	4-5 days
Large trees, shrubs	6-8 hours	1-2 days	2-3 days	5-6 days
Pots up to 15 in.	3-5 min	1-2 days	2-3 days	4-5 days
Pots 15 in. and larger	5-10 min	1-2 days	2-3 days	4-5 days

WATERING WITH MICRO SPRINKLERS

Type of plant	Watering Legth	Hot Weather	Warm Weather	Cool Weather
Flowersbeds, groundcover	30 min -1 hr	1-2 days	3 days	4-6 days
Small trees	1-2 hours	2-3 days	4-5 days	5-6 days
Medium tress	2-3 hours	2-3 days	4-5 days	6-7 days
Large trees	2-5 hours	2-3 days	4-5 days	5-7 days
Greenhouses	5-10 min	2-4 times/day	2 times/2 days	1 time/2 days

Eight Essential Drip Irrigation Tips and Practices

Scan this QR code
for a comprehensive
experience



1

STRATEGIC PLANNING AND DESIGN

Unlock Drip Irrigation Excellence

The success of your drip irrigation system hinges on meticulous planning and design. Valuable resources for this crucial step can be found online at www.digcorp.com, offering comprehensive guidance to ensure optimal performance.

3

OPTIMAL WATERING TIME

*Enhance Plant Health
with Early Morning Care*

Choose the early morning hours for watering when temperatures are cooler, and winds are subdued, minimizing evaporation. This thoughtful timing enhances water absorption and utilization by plants, fostering a healthier and more vibrant landscape.

2

AUTOMATE WITH PRECISION

*Boost Efficiency with Battery
or Solar-Powered Timers*

Elevate the efficiency of your drip irrigation system by integrating a battery-operated or solar timer/controller. This automation not only streamlines irrigation scheduling but also conserves both water and time, contributing to a more resource-efficient landscape.

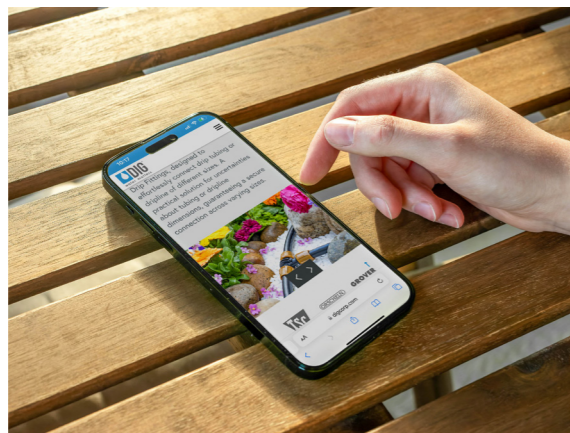
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COMBAT OVERWATERING

*Embrace Drip Irrigation for Precision Hydration
and Lush Landscapes*

Harness the power of drip irrigation to sidestep overwatering, creating a conducive environment for robust root zones and promoting lush, green landscapes. This precision in water delivery ensures a harmonious balance between hydration and plant health.

Drip Irrigation Tips and Practices



Discover additional irrigation solutions by scanning this code



5

ABOVE - GROUND DRIP SYSTEMS

**Enhance Durability and Easy Maintenance for
Long-lasting Performance**

Choose the reliability of above-ground drip irrigation systems, which offer distinct advantages over sub-surface dripline counterparts. Enjoy enhanced durability and simplified maintenance, ensuring prolonged system longevity and ease of upkeep.

7

ENHANCE SYSTEM RELIABILITY

**Uninterrupted Performance
with 150+ Mesh Filters**

Ensure Peak Performance: Protect Drip Emitters and Micro Sprinklers with a 150+ Mesh Filter, Preventing Clogs for an Efficient System.

6

WATER PRESSURE OPTIMIZATION

**Implement a proactive approach
to water pressure management**

Monitor water pressure regularly and install a pressure regulator after the filter to safeguard your drip irrigation setup from potential damage. Maintaining optimal pressure ensures consistent and reliable system operation.

8

SOLAR - SOFTENED SUCCESS

**Streamline Installation with
Temperature-Aided Drip Tubing**

Prepare for an easy installation experience by unwinding the drip tubing and allowing it to bask in sunlight briefly before installation. This warming process softens the tubing, enhancing flexibility for a smoother and more effortless setup.