

Drip Irrigation 101

Cado Daily, Water Wise Conservation Program Coordinator, University of Arizona Cooperative Extension, Cochise County

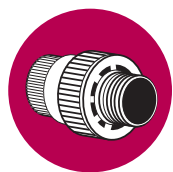
Drip irrigation — also known as low-flow, micro, and trickle irrigation — is the slow, measured application of water through devices called emitters. A properly functioning drip irrigation system saves water because little is lost to runoff or evaporation. This watering method also promotes healthy plant growth, controls weed growth, and reduces pest problems. Drip irrigation systems can be big time and water savers. But if left alone after installation or if incorrectly assembled, the system can be a big water waster instead of a water saver.

Just like the song “Head, Shoulders, Knees and Toes,” that teaches children about anatomy, understanding drip irrigation systems isn’t hard once you learn the basics. The valve is connected to the — filter, and the filter is connected to the — pressure regulator, and the pressure regulator is connected to the — piping, and oh! That’s how an irrigation system goes. There is a wide assortment of equipment to suit most budgets and watering needs. Use the descriptive list below to identify system components and maintenance actions.

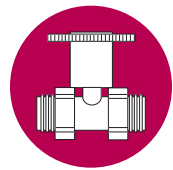
Controller/Timer: This device automatically activates irrigation valves on pre-selected days. It controls when, how long and how often the system waters. Good timers allow maximum watering intervals of 30 days. Established low water use plants do not need water more frequently than every 2-3 weeks. If the controller only allows you to water once a week or less, you are wasting water. Water for no less than 1 hour to allow enough water to penetrate to a root depth of either 1, 2 or 3 feet deep for small plants, shrubs or trees respectively. Change watering frequencies monthly or seasonally. Do not use the budgeting feature on most controllers because it changes the length of watering time, not the frequency.



Backflow Preventer: This device prevents the irrigation system from being siphoned back into drinking water. Your water provider may regulate the installation of backflow preventers. Contact them for more information.



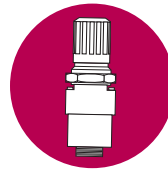
Valves: Manually or automatically operated control valves turn the water on and off. Automatic control valves are wired to a controller. Good drip systems have multiple valves to control watering small plants, shrubs and trees separately.



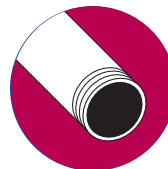
Filter: All drip systems need a filter to keep dirt and debris from clogging the emitters. Replace or clean the filter at least once a year. Clogged filters are often the cause of a poorly performing drip system.



Pressure Regulator: Most drip systems operate at low pressure, usually less than 20 psi. Pressure regulators reduce incoming water pressure to the ideal pressure for the drip system. Water companies are required to deliver water at a minimum of 30 psi, although pressures can exceed 80 psi. Excessive water pressures can pop off emitters and cause water to be emitted at a greater rate than desired.



Pipe: Polyethylene tubing and rigid PVC are the two most commonly used types of irrigation pipes. Pipes distribute water from valves to the irrigated area. Over time, pipes can become bent, cracked or punctured. Excessive plant growth or hissing sounds when the watering system is activated may indicate an underground leak.



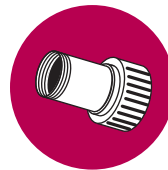
Micro-tubing: Also known as ¼ inch or spaghetti tubing, micro-tubing delivers water from the piping to or from the emitters. Periodically check for micro-tubing leaks.



Emitters: These connect to the pipes or tubing and deliver water at a slow, consistent rate, usually 1, 2 or 4 gallons per hour. The choice of emitter output depends on how quickly or slowly water penetrates the soil. Compacted and clay soils cannot absorb water at a fast rate. That factor makes smaller quantity emitters the best choice to reduce run-off. Inspect pipes and tubing monthly for missing or clogged emitters. As the plant grows, do not keep the emitters near the base of the plant. Move them out to the plants drip line. Close off unused emitters using “goof plugs.”



Flush Valve/Cap: Found at the end of each irrigation line, flush valves cap the line and allow flushing the line of dirt and debris.



Nearly all of your landscape can be watered with drip irrigation. Drip systems are particularly well suited for desert landscapes, places where runoff can be a problem, and small, narrow areas such as entryways. Drip is also a great way to water vegetables, flowers and potted plants. Once you know a little bit about drip irrigation parts, you can be singing your own song!