

Disc filters

Water quality is a key factor in the continued trouble free operation of an irrigation system and can be affected by many issues including the water source, system design, seasonal changes, pipe condition, storage facilities, and the level of system maintenance.

A filtration system is necessary to maintain the required water quality and ensure debris and impurities do not clog the irrigation system components such as the sprinklers, emitters, valves and solenoids.

A disc filter is a type of irrigation filter, similar to a screen or mesh filter, except that the filter cartridge is made up of a number of discs or rings stacked on top of each other.

The water passes through the small grooves in between the stacked discs and the impurities are trapped in the space between these discs. Some disc filters can be backflushed, allowing the discs to separate and spin during the backwash cleaning cycle, ensuring all debris is removed from between the discs.



Disc filters are available in a range of sizes, levels of filtration and flow capacities. They are sometimes used as a primary filter in small irrigation systems, but more often these filters are used as back-up filtration in the field for propagation mist systems, micro sprinklers and drip irrigation systems. Disc filters can be installed upright or inverted, are considered highly effective, and are able to stop or retain large amounts of debris and impurities from the water due to the depth of the disc element. Disc filters generally have a greater holding capacity than similar size screen or mesh filters, and therefore require less frequent cleaning.

Disc filters consist of a series of grooved, compressed plastic discs or rings and provide excellent water filtration when sized and installed correctly. The plastic discs or rings are often available colour coded to identify the level of filtration provided. The discs are manufactured with tapered diagonal grooves on both sides of each disc and then stacked and compressed on top of each other on a spindle, creating a cylindrical filter element that provides a specific level of filtration.



The grooves on the face of the stacked discs run opposite to each other and when compressed together, create a crosshatched groove design filtering water through the entire depth of the disc or ring, not just at the surface. This design feature provides a large filter area allowing longer periods between cleaning, less maintenance and extended product life.

During filter operation, dirty water enters the filter housing and increases pressure on the outside of the filter element, compressing the discs or rings tightly together. The grooves in the discs when compressed together form a three dimensional network that traps particles providing high filtration efficiency and allowing clean filtered water to enter the irrigation system.

Disc filter cleaning can be achieved by isolating the filter from the irrigation system, removing the filter element from the filter housing, loosening the compression on the discs, and with a jet of water, hose away the previously trapped particles from between the discs or rings. Larger more expensive disc filters may have a backwashing capability that releases pressure on the discs allowing the discs to separate and spin during the backwash cleaning cycle, ensuring all debris is removed from between the discs.

Selection of Disc filters for nursery production requires specialist advice from irrigation professionals. System specification requirements include:

- Filter location within the total irrigation system
- System flow rate and pressure at proposed filter location
- Water disinfection system and location within the system
- Level and type of contaminants in the water and seasonal changes
- System filtration requirements

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