

Greenhouse and Nursery Water Treatment Information System

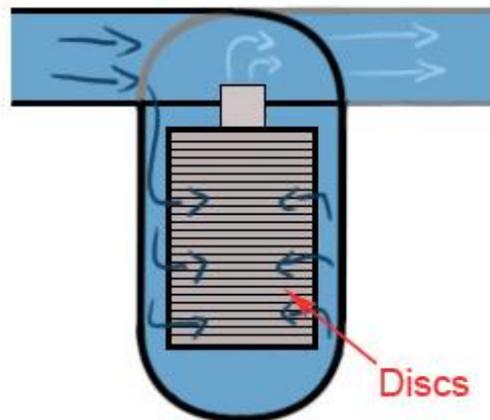
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Disk Filtration

Approximate particle size filtered: >10-20 micron (1250-625 mesh)

Removes: Silt, fine organic and inorganic debris, algae/biofilm, general soil particles



A disk filter is constructed from numerous flat, grooved disks stacked tightly on top of each other and contained inside of a casing. Water flows into the filter casing, surrounds the stacked disks, and is forced through the grooves by water pressure, removing the filtered material. Generally, these filters do not cause a significant water pressure drop, and are best suited to water sources with low solid concentration (Bartok, 2009). The filter is cleaned via reversing water flow (backflushing), which causes the disk stack to expand and spin, ejecting the particles. Often, several filters can be used in parallel so that a single filter can be backflushed without affecting the flow rate of the irrigation system, facilitating cleaning (Bartok, 2009).

Disk filters are not ideal for use if the water source has a high sand content. Sand may become caught between disks when they expand during backflushing, reducing filtration effectiveness (Benham and Ross, 2009). A media filter may be a better option if large amounts of sand are present. Alternatively, a centrifugal separator or screen filter may be installed ahead of the disk filter so sand particles are removed before they reach the disk filter.

Disk filter cost varies based on flow capacity and whether the filter is automatic-cleaning or manual. Prices may range from <\$100 for a manual filter with maximum flow capacity <75 litres per minute to \$6,500 for an automatic filter with a maximum flow capacity of >350 litres per minute.

REFERENCES

Bartok, J.W. 2009. Protecting your water system with a good filter. *University of Massachusetts Amherst*: Amherst, MA. <http://extension.umass.edu/floriculture/fact-sheets/protecting-your-water-system-good-filter>

Benham, B. and Ross, B. 2009. Filtration, Treatment, and Maintenance Considerations for Micro-Irrigation Systems. *Virginia State University*: Petersburg, VA.