

Novel Back-Flushable Drinking Water System

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This paper will describe a propriety technology used to backflush hollow fiber drinking water systems based upon using a unique system of dual non-resilient collapsible chambers.

What is described is an automatic or manually backflushable membrane filter where clean filtered water is sent back through the fiber in a reverse direction flushing away solids. The backflushing is accomplished by a dual non-resilient collapsible chamber device integral or separate from the module housing. The most common usage is with an outside/in hollow fiber typically microporous and ultrafiltration membranes. These membranes can be made of PES, PS, PVDF and a wide variety of polymeric and inorganic materials.

The system utilizes a unique dual non-resilient chamber device that allows for backflushing membranes at a higher pressure than the feed water without the need for external pumps.

The technique described here can also be used with other types of filters like pleated cartridges, spiral wound elements, plate-and-frame devices, and other configurations.

To remove other water constituents and/or improve the performance of the hollow fiber membranes there can be extra space in the top and/or bottom of the module housing. This extra space will be used to add prefilters, carbon, ion exchange resin, activated alumina, and a wide variety of other filters, absorbers, etc.

Market Opportunities for drinking water systems:

- Under-the-sink systems (POU)
- Entry into a house or apartment (POE)
- Ice Machine feed lines
- Sports: backpacking, biking, hiking, camping
- Campers
- Small municipalities
- Treatment of the water for entire homes or apartment complexes
- Restaurants
- Hotels