



Key Features

The main feature of the Aqua UltraFiltration™ system is the fact that its fibers simply don't break. We are so confident of this claim that our standard membrane warranty includes provisions to replace an entire membrane module if even one of its fibers break within the first 5 years! There are several reasons that we can make this claim, but the main reason is due to the unique multi-bore fiber structure, as seen in the photo below; this gives the fiber strength that single-bore hollow fibers don't have.



The unbreakable nature of the membrane fiber is supported by the fact that there have been virtually no fiber breaks in the over 1,000 installations in which the membrane has been used over the last 10 years.

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Other major benefits of the UF system are:

1. **No air scour required.** Because the membranes operate in an inside-to-outside filtration direction, the solids are completely contained inside the fiber bores and can be removed with the velocity created by the flow of backwash water. In contrast, membranes that operate in an outside-to-inside filtration direction tend to accumulate solids around the outside of the fibers; because this can be a sizeable area, air scour is needed to provide enough energy to remove these solids.
2. **Superior membrane material.** The membrane is made of polyethersulphone (PES), in lieu of polyvinylidene fluoride (PVDF). PES is cleaned with caustic, which is better at dissolving organic foulants than the chlorine used to clean PVDF membranes. In addition, PES is more hydrophilic than PVDF, which means it's more resistant to fouling. Though PES is less flexible and less resistant to chlorine, it's not at a disadvantage since the PES fibers will not break and are not cleaned with chlorine.
3. **Less trans-membrane pressure.** The small, uniform membrane pores result in an overall lower TMP than other membranes, often less than half!
4. **Less backwash water and cleaning chemicals needed.** This is due to three unique characteristics of the system:
 - the feed and backwash flows are alternated between upflow and downflow in order to more evenly deposit/remove solids,
 - the fiber bundle is offset in the module to provide even flows through each fiber, and
 - the inside-to-outside filtration direction means that there is a lower pressure drop across the fiber length during backwash.

