



AQUA-AEROBIC SYSTEMS, INC.

Aqua UltraFiltration™

MEMBRANE SYSTEM

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The Aqua UltraFiltration™ Membrane System combines unequalled membrane strength with high permeability to create a system solution that provides exceptional effluent quality, meeting the most stringent requirements. This external ultrafiltration system is ideal for reverse osmosis pre-treatment plants and drinking water, industrial water, tertiary wastewater, and reuse applications that require low effluent suspended solids or phosphorus. Compared to other membrane filtration, the modular Aqua UltraFiltration system offers two distinct advantages - the membrane fibers **do not break** and **no air scouring is required**. These advantages maintain high quality effluent, eliminate downtime for repairs, save energy, and reduce O&M costs.

Features and Advantages

- Special multibore construction creates strong fibers
- Inside-to-out flow path yields even, efficient backwash
- Large bore diameter means low plugging tendency
- Polyethersulfone (PES) membrane material resists fouling
- T-rack assembly has small foot print and is easily expandable
- Prewired/pretubed feed skirts are simple to install



Overview of an installed ultrafiltration system.

Automated Phases of Operation

Filtration Phase

Feed water is pumped through a 300-micron strainer¹ and into the bores of the membrane fibers. The 0.02 µm pores that line each bore allow water to pass through to the outside of the fibers but retain suspended solids, bacteria, and viruses. The filtered water flows from the outside of the fibers and into the filtrate/backwash tank, where it is discharged or used for periodic backwashing.

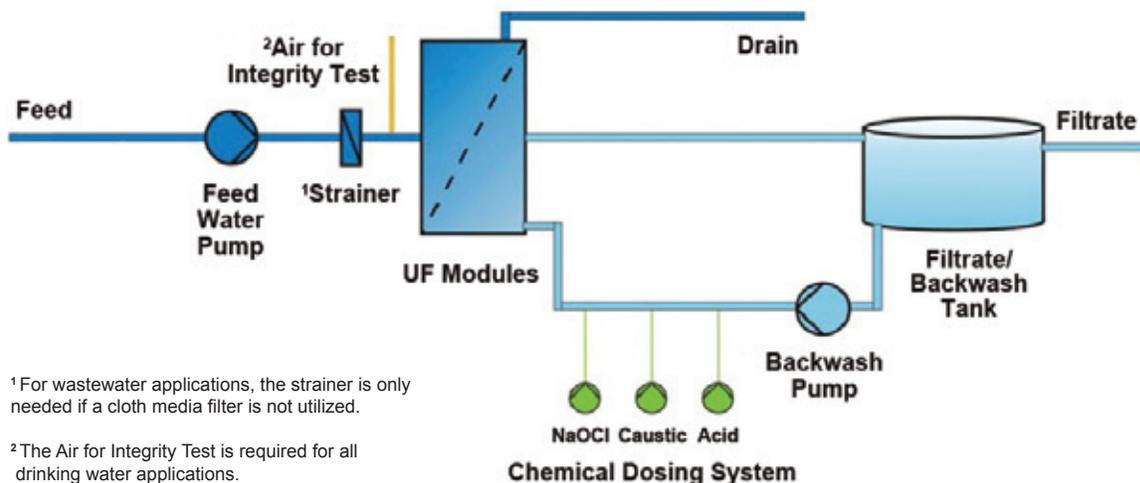
Backwash Phase

The solids accumulated inside the bores of the membrane fibers must be flushed out periodically, typically once per hour. Filtered water is pumped from the filtrate/backwash tank into the module and flows from the outside of the fibers into each of the fiber bores. The solids lining each bore are flushed out to drain.

Chemically Enhanced Backwash (CEB) Phase

The backwash will not remove all of the accumulated solids; therefore, the membranes must be cleaned periodically with chemicals. During a normal backwash, a chemical is injected into the filtered water just prior to entering the membrane. The fibers soak briefly in the dilute chemical before being flushed to drain. Typically, the membranes are cleaned daily with caustic. Acid and NaOCl are used as needed for metal removal and disinfection, respectively.

Typical Aqua UltraFiltration™ System Arrangement



Visit our website to learn more about the Aqua UltraFiltration™ Membrane System and our complete line of products and services.