

***Pre-Engineered Components Engineered into an Integrated Solution***

Although the individual components are pre-engineered, Envirogen applies our expertise to assess the treatment objectives and evaluate contaminant interactions.

The process begins with the definition of the problems faced. In many cases, more than one technology will solve the issue, as shown in Table 1. The key is defining the optimum total solution. Put Envirogen experts to work to solve your water treatment challenges.

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# Small to Mid-sized Industrial Water Treatment Systems

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**Multi-Media Filtration** – The completely engineered system features a layered Anthracite, Sand and Garnet media bed to deliver clarifying filtration via a true graded pore structure.

**Applications** – Reduction of suspended solids such as silt, clay, algae, and other particulates in feed water. Pretreatment and protection of sensitive downstream equipment.

**Tank Construction Materials** – Fiberglass Reinforced Plastic (FRP) or Carbon Steel (CS)

**Flow Range** – From 1 to 445 GPM



**Activated Carbon Systems** – Envirogen prefabricated Activated Carbon systems feature high surface area granular carbon for high capacity adsorption in liquid applications.

**Applications** – Adsorption of chlorine, chloramines, organics, taste and odor for drinking water, waste streams, groundwater remediation, industrial process water, or for protection of RO membranes.

**Tank Construction Materials** – Fiberglass Reinforced Plastic (FRP) or Carbon Steel (CS)

**Flow Range** – From 1 to 635 GPM



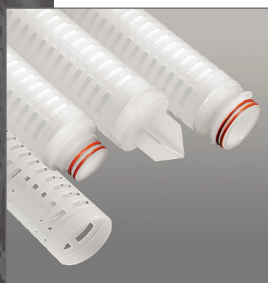
**Softeners** – Envirogen softeners are used to “soften” hard water via an ion exchange process to remove dissolved minerals in the form of Calcium (Ca), and Magnesium (Mg).

**Applications** – Prevent scaling of pipes, boilers, and other equipment. Reduce fouling/scaling of RO membranes that results in permanent RO flux decline and loss of water quality.

**Tank Construction Materials** – FRP or carbon steel softener tanks and polyethylene brine tanks

**Product Range** – Single, Duplex, Triplex and Quad configurations. Electronic valves facilitate regeneration based on time or flow.

**Flow Range** – From 4 to 900 GPM



**Cartridge and Bag Filtration** – Envirogen offers a complete range of cartridge and bag filters and housings to deliver clarifying filtration.

**Applications** – For removal of suspended solids, silt density index (SDI) reduction for pre RO, or microbiological control with membrane filters for high purity applications.

**Bag Filter Product Range** – Polyester and polypropylene felt (0.5 to 200  $\mu\text{m}$ ), high efficiency polypropylene meltblown (0.5 to 50  $\mu\text{m}$ ), oil absorbing (1 to 100  $\mu\text{m}$ ), and nylon monofilament mesh (5 to 1200  $\mu\text{m}$ ).

**Cartridge Filter Product Range** – Pleated polypropylene (0.2 to 100  $\mu\text{m}$ ), polyethersulfone and PTFE membranes (0.05 to 0.65  $\mu\text{m}$ ), cylindrical meltblown depth filters (0.5 to 75  $\mu\text{m}$ ), carbon block filters (5  $\mu\text{m}$ ), as well as large geometry/high flow (1 to 100  $\mu\text{m}$ ).

**Filter Housing Product Range** – Stainless steel, carbon steel and plastic housings hold one or multiple filters.

**Reverse Osmosis** – Envirogen Reverse Osmosis systems are used in the production of purified water and to reduce the volume of wastewater.

**Applications** – RO Membranes reject ions, organics, and bacteria. Use in the production of purified water in industrial, healthcare, and pharmaceutical applications.

**Product Array** – Horizontal or vertical configurations with 1 to 24 low energy membrane modules

**Flow Range** – 1 to 125 GPM



**Ion Exchange** – Envirogen offers a wide variety of ion exchange systems for clean water or wastewater streams. The pre-packaged modular systems come with a variety of resin choices to meet application requirements.

**Applications** – For the removal of soluble ions such as nitrate, arsenic, radium, barium, uranium, organics, minerals (deionization), and metals.

**Product Range** – Single and multi-bed designs, on-site or off-site regeneration, co-current regeneration, or for higher purity applications, counter-current is also available.

**Tank Construction Materials** – Fiberglass Reinforced Plastic (FRP), carbon steel or stainless steel

**Flow Range** – 5 to 1000+ GPM



**UV Disinfection** – Envirogen Ultraviolet (UV) systems disinfect water by utilizing germicidal ultraviolet lamps that produce short wave radiation lethal to bacteria, viruses, and other microorganisms.

**Applications** – Used for disinfection, TOC reduction, or removal of chlorine or ozone for drinking water, food & beverage process water, healthcare or pharmaceutical processes.

**Product Range** – Single lamp and modular multi-lamp systems are simple to operate and maintain.

**Flow Range** – 3 to 416 GPM



**Ultrafiltration for Feed Water Systems** – Envirogen modular Ultrafiltration Systems feature hollow-fiber membranes that flow inside-out, for more effective cleaning, longer life, and no exterior abrasion of fibers. Either dead-end or partial cross-flow configurations offered.

**Applications** – Ideal for removal of submicron particulate in potable or process water applications even with incoming water turbidity as high as 250 NTU.

**Product Range** – Vertically oriented Hydrophilic hollow fiber membrane, 0.8 or 1.5mm bore size, 0.02  $\mu\text{m}$  pore size. Modular systems with up to 12 modules per bank and 2 to 4 banks per system.

**Flow Range** – 13 to 507 GPM

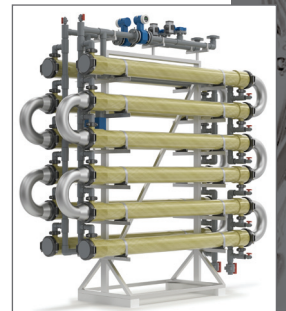


**Ultrafiltration for High Solids Systems** – Envirogen crossflow Ultrafiltration Membrane Systems are tubular membranes with Helix technology, designed to whisk contaminants away from the membrane surface to prevent fouling.

**Applications** – For removal of submicron particulate in food & beverage, metals removal following co-precipitation, concentration of fermentation broth, purification of yeast solutions, concentration of biomass, produced water (oil/water separation), and paper mill effluent.

**Product Range** – Hydrophilic tubular PVDF membrane, 5.2 or 8 mm bore size, 0.03  $\mu\text{m}$  pore size. Inside/out flow direction for more effective cleaning and longer life. Membranes are housed in 8" x 3-meter PVC modules with up to 6 modules per bank, and up to 4 banks per system.

**Flow Range** – 1 to 800 GPM

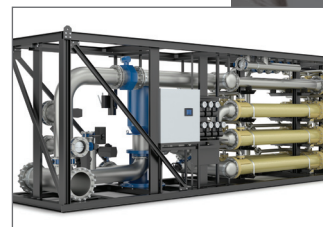


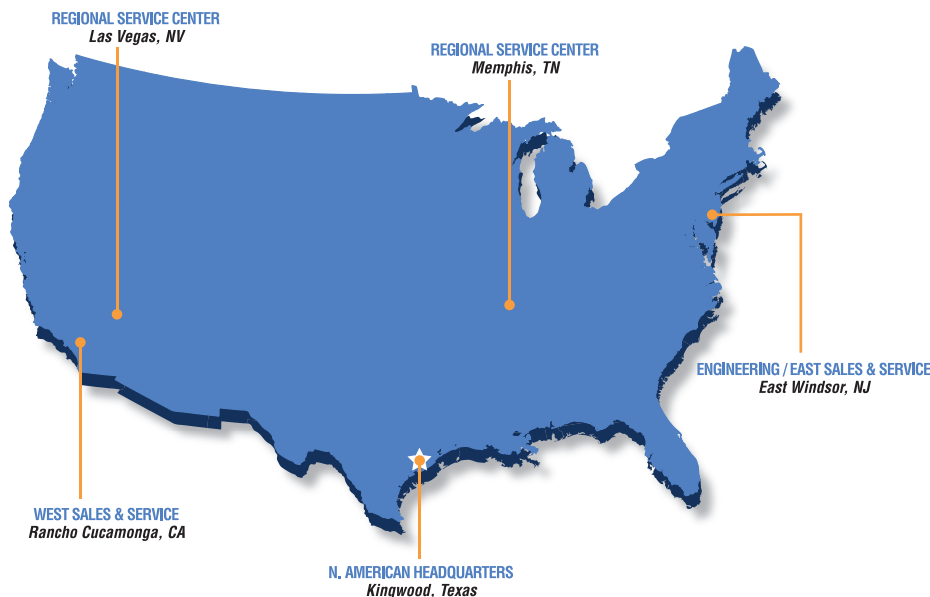
**Membrane Bioreactors** – Envirogen Membrane Bioreactors combine an aerobic suspended growth-bioreactor with an external membrane liquid/solids separation unit to provide an advanced level of organic and suspended solids removal from wastewater streams.

**Applications** – Wastewater or groundwater streams with recalcitrant organics or high contaminant concentrations, even with highly variable influent composition.

**Product Range** – Hydrophilic 8 mm tubular PVDF membrane 0.03  $\mu\text{m}$  (30 nm) pore size, with 2 to 6 modules per bank and up to 3 banks to accommodate flow needs.

**Flow Range** – 6 to 19 GPM for low flow systems and 22 to 400 GPM for high flow systems.





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## Why work with Envirogen?

- End-to-End Water Solutions
- Process Engineering Expertise
- Leading-Edge Technologies
- Tailor-Made Solutions
- Lifecycle Cost Assurance Programs
- Expert Operating Services



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