

Model 4577

Automated Extended Life Pre-Filter System for R/O & Membranes



Sigma Design has long been involved in designing products used by companies in the water and wastewater industry. Recently, the company developed an automated, extended life pre-filtration system for Reverse Osmosis (R/O) and other membrane applications that provides security for process systems that require fine filtration but are also affected by variable TSS and high solids loading.

Sigma's solution integrated two advanced technologies—a 10 μ Automatic SWT Model 850 PVC Filter and a Z.Plex gradient density Cartridge Filter—in a system that delivers a powerful one-two punch in helping to prevent clogging, thus enhancing productivity and reducing costs.

On their own, microfilter cartridges are prone to clogging if exposed to unexpected, high volumes of larger debris. By coupling the cartridge and filter, the new system extends the life of the polishing cartridge, which itself has 50x times the dirt holding capacity of a standard 40" 2.5 OD depth cartridge.



Benefits

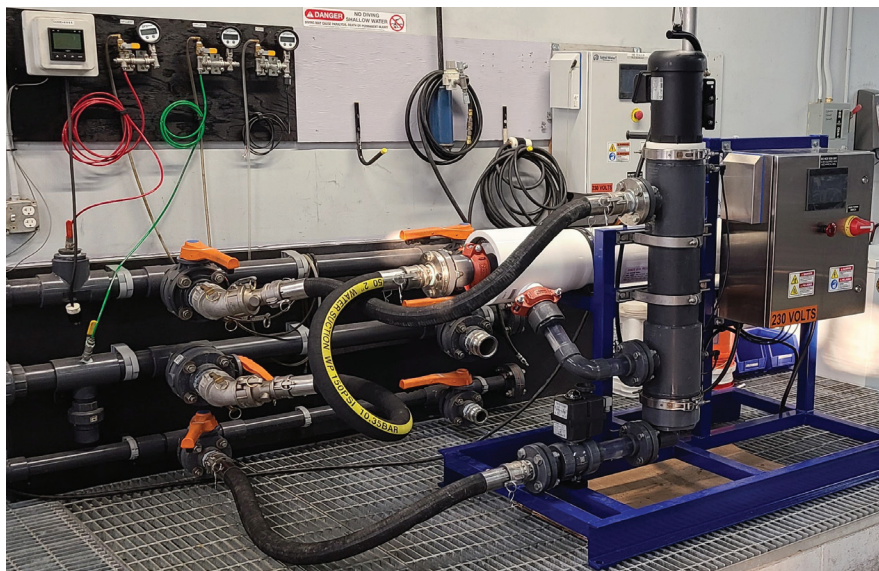
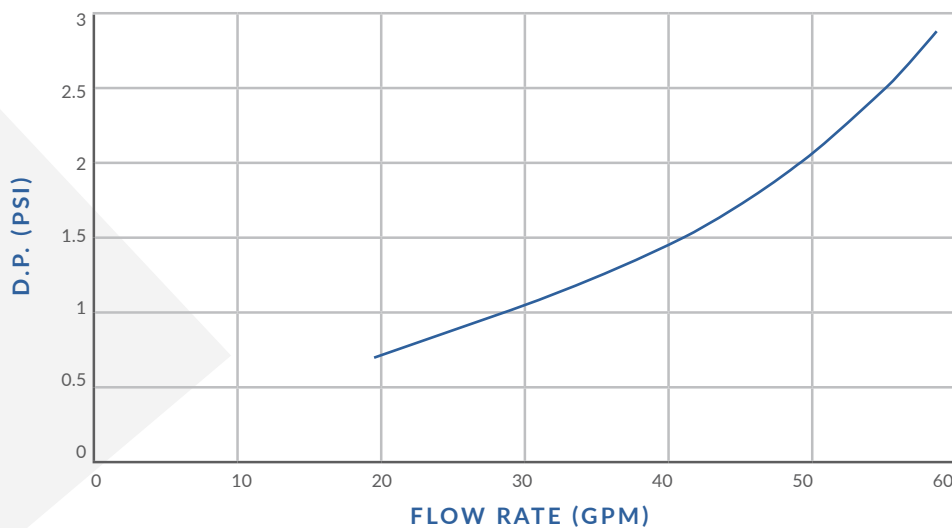
- **Extended Filter Life:** The self-cleaning pre-filter removes larger particles before they reach the microfilter cartridge, thus extending the life of the more expensive microfilter cartridges.
- **Improved Efficiency and Reduced Maintenance Costs:** By preventing larger particles from entering the microfilter, the pre-filters also maintain the microfilter's effectiveness, ensuring that it can operate at its designed efficiency level. They also help reduce the frequency of filter replacements and maintenance—saving costs for materials and labor.
- **Reduced Downtime:** By preventing larger particles from entering the microfilter, the pre-filters also maintain the microfilter's effectiveness, ensuring that it can operate at its designed efficiency level. They also help reduce the frequency of filter replacements and maintenance—saving costs for materials and labor.
- **Protection of Sensitive Equipment:** Pre-filters play a vital role in preventing damage or contamination in applications where microfilters are used to protect sensitive equipment or processes.
- **Improved Filtrate Quality:** Pre-filtration significantly enhances the quality of the filtrate by removing large contaminants that could compromise the final product – essential in industries where product quality and purity are paramount.
- **Environmental Considerations:** Reducing the frequency of filter cartridge replacements saves costs while also reducing the environmental impact associated with the disposal of used cartridges.

TURNING SMART IDEAS INTO PRODUCT SOLUTIONS

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This new, extended long-life prefilter package automatically manages upset conditions as high as 2000 ppm without operator assistance. With a robust yet simple to use control interface, the system detects sudden upsets in process flow and the filter expels the debris through its automated purge line. This enables the system to maintain continuous filtration of the influent stream without the need for operator intervention or cleaning.

Model 850 Pre-RO Skid (25µm Screen & 1µm Cartridge Filter) Flow Rate vs D.P.



Our Model 4577 has demonstrated its efficacy throughout rigorous testing.

[Learn more about our Industrial Water and Filtration Systems](#)

About Sigma Design Company

Sigma Design is a leading one-stop design, engineering, and manufacturing resource for the development of specialty equipment and engineered systems. Our mission is to provide clients with creative, affordable and easily manufactured designs and manufacturing assembly solutions that achieve their product, business and revenue goals. Our clients have included hundreds of leading global brands and manufacturing firms across a wide array of industries. Based in New Jersey for more than 20 years, we have transformed more than 1,000 design and design/build projects into successful products and specialty equipment in use across the world.

SERVICES INCLUDE:

- Design and engineering
- Testing
- Manufacturing

Your trusted one-stop resource for end-to-end product development and commercialization solutions, on time and on budget.

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