

PROCESS TECHNOLOGY

FE Series, Filtran™ Filter Etch Process Bath

The FE Series Filter Etch Bath is a self-contained chemical process system consisting of two PVDF recirculation tanks, pump, filter chamber and PTFE immersion heater. The system also includes a separate temperature control module, high voltage power module, and purge flow panel.

Applications Include:

- Buffered oxide etch (BOE) process (hydrofluoric and ammonium fluoride)
- Hydrofluoric acid (HF)
- PAN etch (Phosphoric, Acetic, and Nitric)
- Phosphoric acid (H_3PO_4)
- Acetic acid ($C_2H_4O_2$)

SPECIFICATIONS:

Service: PVDF process bath for a wide variety of wet chemistry applications

Tank sizes: From one 3" (75mm) cassette up to two 8" (200mm) cassettes

Safety Features:

- Capacitive style liquid level sensor
- Heater purge backpressure monitor
- Heater element over-temperature sensor
- Process high temperature alarm
- Pump motor gas purge flow monitor

Temperature range: Up to 110° C (depending on chemistry)

Standard features:

- Pump/motor:
 - Vertical PVDF impeller style pump located in the outer weir tank
 - Totally enclosed, fan cooled (TEFC) electric motor, gas purged and labyrinth sealed to keep out corrosive vapors
- Filter:
 - PVDF filter chamber located in the outer weir
 - Submerged fluid connections
 - Accepts standard #222 o-ring, 10-inch SOE filter cartridge (not included)



Filtran bath shown with optional lid.

- Tanks:
 - Rugged PVDF process tank and outer weir tank
 - Process tank PVDF sparger rails for even chemical dispersion
 - PTFE false bottom provides a stable carrier platform
 - Serrated edge process tank walls to prevent whirlpools
 - Easy-to-level process tank ensures uniform cascading of the chemistry
 - PVDF Outer weir tank for enhanced chemical and heat distribution
 - Flow gate to control the flow rate over the process tank walls
 - PVDF lid
- Heater:
 - Patented, gas purged, PTFE construction
 - 120 volts to 600 volts, single or three phase available
 - Wattages configured to the application and tank size
- Temperature/Process Control Module:
 - 24-volt digital PID control standard
 - Start, Stop, Reset, and Pump switches
 - J-type process thermocouple
 - Count down timer
 - Cooling flow activation indicator
 - Safety circuit alarm display

FEATURES AND BENEFITS:

- **Excellent temperature ramp up, stability, and uniformity:** The immersion heater design and placement virtually eliminates temperature gradients. Temperature ramp up and recovery is up to five times faster than quartz tank indirect heating methods.
 - **Reduced cost of ownership (COO):** Durable PVDF construction lasts longer than comparable quartz tanks and also eliminates the need for keeping expensive spare quartz tanks in stock. Purged PTFE heaters last much longer than quartz tank heaters and can eliminate the need for a heat/cool recirculator.
 - **Improved yield:** High process solution turnover results in lower particle counts for improved yield.
 - **Long heater life:** Patented heater gas purge system continuously removes any chemical permeation and ensures exceptionally long element life.
 - **Outstanding chemical compatibility:** All wetted parts are PVDF or fluoropolymer and compatible with a wide variety of chemistries.
 - **Excellent Return on Investment (ROI):** Filtered chemistry extends the useful life of the bath reducing chemical costs.
 - **Reduced leaks:** Self-contained pump/filter within the outer weir tank reduces the potential for chemical leaks.
 - **Reduced downtime (MTTR):** Eliminate the time and expense of sending quartz tanks back to the manufacturer for repair/replacement.
 - **Easy heater replacement:** PTFE immersion heaters are easily replaced without replacing the entire tank assembly. (When an externally bonded heater on a quartz tank fails you must remove the entire tank and return it to the manufacturer.)
- Options:**
- Fluoropolymer cooling coil for ambient temperature applications
 - Located in the outer weir tank and used in conjunction with the immersion heater
 - +/- .2° C chemical stability attainable
 - Excellent recovery rate
 - Water chiller unit
 - Drain options:
 - No drain
 - Manual drain
 - Pneumatic operated drain
 - Custom tank sizes
 - PLC process control

