AST FIT SYSTEM

These exceptional filters backwash automatically, several times a day. The user does not need to open or close any valves during the backwash sequence. The filter does not require an electric timer. The backwash cycle is regulated by the air that is injected into the charge chamber. The filters clean and recycle the dirty water produced in backwashing every two to three hours. Sludge is only removed once or twice a week.

BEFORE BACKWASH



Exchange pipe Discharge port(s) The water moves from the inlet up through the bead bed. The bead bed provides surface area for the water purifying bacteria and captures solids within the aquatic system. Solids are collected within the bead bed. Air is slowly injected into the charge chamber, gathering in the top of the charge chamber. As more air enters, this displaces the water in the charge chamber, replacing it with air. The rate of air injection controls the length of time between backwashing events. Sludge settles in the sludge basin from the last backwash cycle.

BACKWASH



Air has made its way through the trigger into the bead bed. The bubbles agitate the beads; knocking solids and biofilm off the beads. As the air pressure in the charge chamber drops, the dirty water from beneath the bead bed sweeps through the chute carrying the solids into the adjacent compartment. No water flows out of the filter during the short 3-5 second backwash event; instead the dirty backwash water is captured in the charge chamber and the sludge basin. The beads float in the drop zone where they continue to be scrubbed by the escaping bubbles.

AFTER BACKWASH



NORMAL FILTRATION



Water continually fills the filtration chamber. At the same time, the air pump is continuing to push air into the charge chamber. Solids that have collected under the bead bed are swept up and out of the discharge ports and are deposited in the isolated sludge basin. The filtration chamber is refilled with the water from the inlet. The beads float back in place to reform the bead bed. As soon as the water rises to the outlet, normal filtration resumes.

The water moves from the inlet up through the bead bed. The bead bed provides surface area for the water purifying bacteria and captures solids within the aquatic system. Air is slowly injected into the charge chamber, gathering in the top of the filter. As more air enters, this places downward pressure on the water level. The water level drops trapping water in the settling zone, and solids from the last backwash settle into the sludge basin. The rate of air injection controls the length of time between backwashing events.

PERIODICALLY DRAIN SLUDGE

The filter will continue to filter and backwash itself several times a day. After the sludge has built up, the user can open the sludge valve to drain the concentrated sludge from the filter. The filter backwashing frequency is usually set for a few hours, resulting in the filter backwashing several times a day. Sludge accumulates in the sludge basin. Every few days, perhaps once a week, the sludge drain must be opened to let the sludge out. A natural fertilizer, the sludge can be mineralized and utilized in hydroponic grow beds or land applied where it will naturally degrade. This sludge will have a "rotten egg" smell that will dissipate with exposure to air.