Filter Set Up Instructions

Unpack all components of this filter system and inspect for any physical damage. Notify the transport company in writing of any apparent damage to the goods. We are not responsible for damage to goods in transit.

Open all manholes and hand-holes on all vessels at least 6 hours prior to entering. This will ensure adequate ventilation of fumes from any epoxy resins used in the lining process.

The vessels should be placed into the correct location and orientation as indicated by the drawings. The vessels should be levelled by shimming, grouting or adjusting the legs as required.

Connect all interior apparatus such as headers and distributors using the appropriate hardware. Ensure that all hubs or headers are installed according to the orientation shown on the prints.

Install the stainless steel lateral screens. Use a Teflon based product on the male threads. Insert the threads in the socket and tighten by hand as much as possible. Use a proper fitting wrench on the shoulder of the screen fitting to complete the installation.

WARNING: NEVER USE A WRENCH ON THE SLOTTED PART OF THE SCREEN!

Gravel Placement

Safety Hazard: Persons entering the vessel should wear an approved dust mask to avoid inhaling the dust vapours. **Never enter a vessel containing activated carbon unless an independent air source is in use. Wet activated carbon depletes oxygen from the air.**

Select the largest size of gravel and place it by hand around the screens. Spread the gravel uniformly over the screens. Do not drop the gravel on to the lower head of a vessel that has interior lining. Select the next size of gravel and place it above the previous grade. Continue in this fashion until the screens are completely covered by a depth of three inches. Remove any foreign matter from the gravel as it is installed.

Usually the support gravel is supplied in the following gradients:

1 1/2 " x 3/4 "
3/4 " x 1/2 "
1/2 " x 1/4 "
1/4 " x 1/8 "
1/8 " x 1/16 "

If the gravel differs from these applications please contact our representative for personalized instructions.

At this point it is recommended to install the stainless steel sample screens in the side-shell ports. Use a Teflon based product on the male threads.

Do not use a wrench on the slotted portion of the sample screens!

Filter Set Up Instructions

Close the lower manhole ensuring that all surfaces are clean and free of particles. It is extremely difficult to seal the manhole after the vessel has been loaded.

Media Placement

Select the appropriate grade and type of media for the application. The media may be installed through the upper manhole. For manganese greensand applications the recommended bed depth is 30". For activated carbon and ion exchange resins the bed depth varies between 36" to 48". Due to the density of the catalytic media such as Pyrolusite, the maximum recommended depth is 24”

Upon completion of the media installation the media should be levelled as much as possible. Care should be taken not to step directly on the surface of any media as this may cause fracturing or scaling. A 12" x 24" section of clean plywood is recombined as a base for standing on and this will fit through the manhole opening.

Do not install the anthracite media at this time.

After the installation of the media the manholes should be closed and the filter should be placed into a slow backwash mode. (This step may not be required for Ion exchange resins as they are usually pre-charged). Ensure that all external connections, isolation valves, air release valves and flow metering / control devices have been installed.

Note: Isolate the air release valve from contact with the initial backwash water as this water usually contains an abundance of foreign matter and grit that will foul the operation of the air release valve unless it is removed and cleaned.

Place the filter into the backwash mode ensuring that the backwash (BW) inlet supply valve has been throttled to restrict the BW water to 4 GPM / Sq. Ft. Allow the water to rise in the filter and flow to waste at this rate until the effluent water is fairly clean. Gradually increase the BW rate until the desired rate is achieved.

The following is a standard BW rate for various medias:

Manganese Greensand 12 - 15 USGPM / Sq. Ft. of Surface Area

Multi Media 10 - 15 " " "

Pyrolusite (Catalytic Media) 25 - 30 " " "

Activated Carbon 8 " " "

Ion Exchange Resin 4 - 5 " " "

Filter Set Up Instructions

Backwash the filter until the effluent is fairly clean. Slowly throttle the BW supply water and isolate the filter. Drain the water level down to below the media surface. Open the upper manhole and inspect the media surface to ensure uniform settling.

Scraping process for multi-media filters and manganese greensand filters:

Using a suitable section of plywood for standing on, utilize a suitable flat trowel to skim the top ½" – ¾" from the media and discard this material. This will remove the accumulated fines and prevent pressure loss across the media bed due to the presence of the media fines. Be sure to avoid stepping directly on the surface of the media.

Install the anthracite media to the correct depth, using the following as a general guide:

- Manganese Greensand Filters 8" - 12" (Depends on freeboard and side-shell)

- Multi Media Filters 12" - 24" (Depends on media configuration)

Ensure that the anthracite is evenly distributed. Close the upper manhole ensuring that the surfaces are clean and free of particles. Place the filter into BW mode ensuring that the flow rate does not exceed 4 USGPM / Sq. Ft. until the anthracite media is washed.

Warning:
Anthracite and activated carbon are very light and will float out the drain to waste very easily until the media is saturated with water and all entrapped air has been expelled from the bed. It is advisable to BW this media at reduced rates for the initial filter set up!

Gradually raise the BW rate until the desired optimum is reached, while observing the discharge from the effluent pipe!

Saturation of Manganese Greensand Filters

It is necessary to saturate greensand with potassium permanganate prior to the initial use.

The media should be dosed with a solution of potassium permanganate at the rate of 2 ounces per cubic foot of media and let stand for 12 hours. It is imperative that the potassium permanganate saturates the entire media bed. Do not place the dry chemical into the filter. The filter should be filled with water and the solution must be poured in the upper manhole. The upper section of the filter which contains the solution should be mixed as much as possible. Slowly drain the filter tank until a purple color is observed at the waste effluent valve. Refill the filter until the solution covers the entire media bed. Close all valves and let the filter saturate for 12 hours. After saturation the filter should be backwashed thoroughly until all traces of potassium permanganate are removed.

The filter may now be placed into service.