

# *Vacuum Diatomite*

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## *Filter Operation and Maintenance Guide*



Certified to  
NSF/ANSI Standard 50

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# FILTER OPERATION AND MAINTENANCE GUIDE

## CHECKLIST

1. Inspect each leaf cover closing strip (Velcro), pressing firmly along the leaf edge for a continuous seal.
2. Outlets of filter leaves must be properly seated in manifold adaptors and leaves spaced equally. Check that sealing washers are in place and that leaf clamps are sufficiently tightened so leaves will not shift.
3. Note the total filter area of your system from data supplied. If this information is not available, multiply the length by height of each leaf to get square footage of one side of the filter leaf. Multiply this by 2 to get the total area of one filter leaf. Then multiply this by the number of leaves to get total square footage of the filter area.

## START UP – SEE SCHEMATIC DRAWING

1. Close waste line.
2. Position valves to recycle water within the filter tank. Close the pool return line.
3. Fill tank with water from the main drain, gutter or fresh water line, allowing a minimum of 6" of water cover over the top of filter leaves.
4. Start pump and recycle. If the water level drops, add water to maintain 6" cover over filter leaves.
5. A proper pre-coat requires 0.10 – 0.15 pounds of diatomite per total square foot of DE area. For the best results distribute DE slowly and evenly over the water surface over top of the entire leaf bank.
6. After **all** the DE has been added, continue to run in recycle (pre-coat) mode until the water in the tank is crystal clear. At this point, the filter can be put on-stream. Open the main drain and then gradually close the recycle line while simultaneously opening the return to pool line. Do not permit the water level to drop below the filter leaves. If the top of the filter tank is below pool level and the tank overflows, the responsiveness of the filter tank level control valve will have to be adjusted.

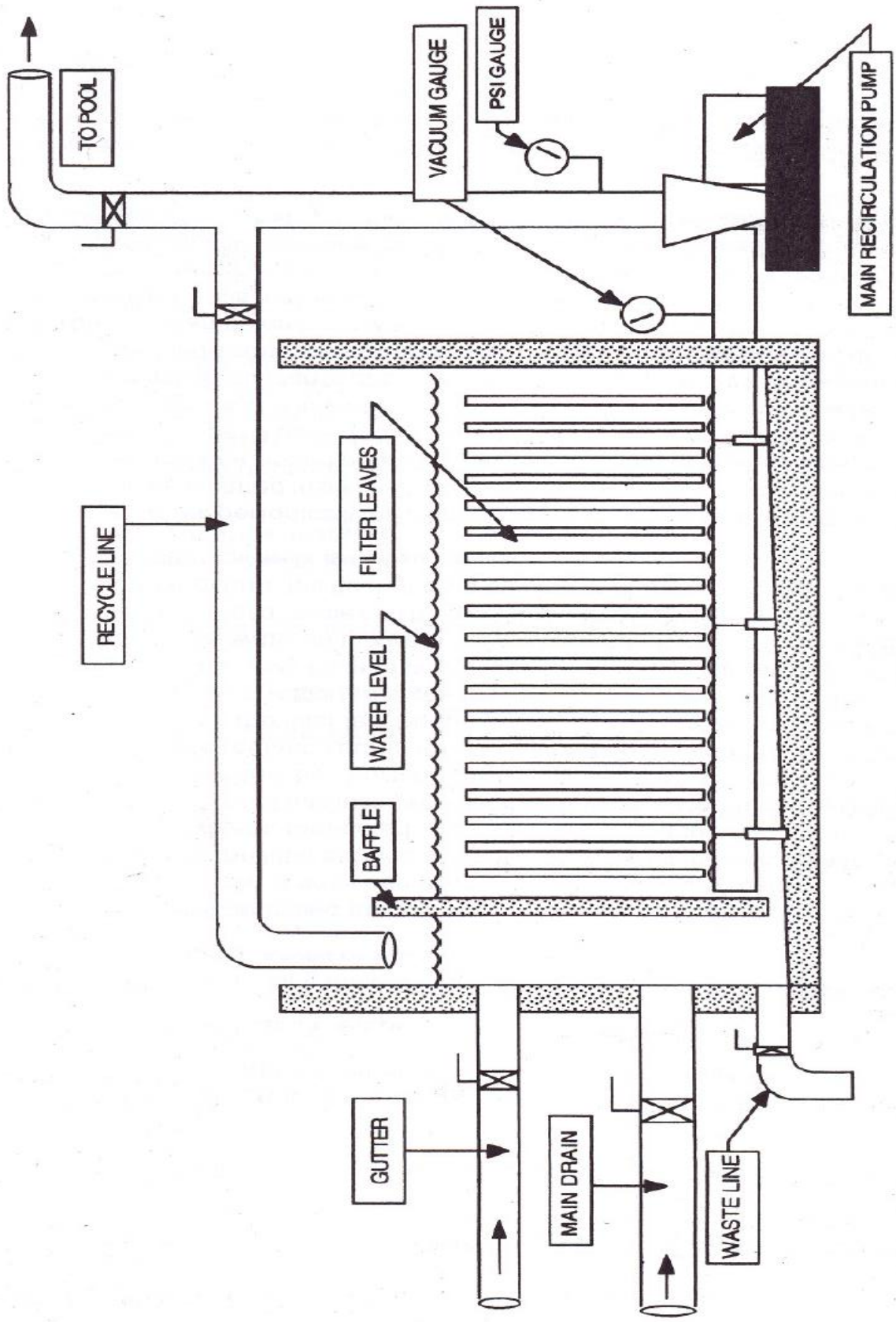
## FILTER CYCLE

1. Filter cycle length can be extended by continuously adding diatomaceous earth during the filter run. This is called "Body-Feeding". The amount of DE should be approximately equal to the initial charge but spread out over the time between filter cleaning. Thus, if your filter used 50 pounds of D.E. for startup and you normally achieve a two to three week cycle, you should add approximately 2 pounds per day (50 divided by 21 days). A common method of hand feeding D.E. is to use a 1 pound coffee can, which holds about ½ pound of diatomaceous earth. Automatic slurry of volumetric feeders is also use for this service. Many pool operators have established that extra body feeding does not extend the filter cycle enough to be worthwhile. Each operator will have to establish the effectiveness of this procedure to his own satisfaction.
2. If you wish to work on equipment in the filter system but do not wish to clean the filters, the filter can be put on recycle. Close the pool return line and position valves to recycle within the filter tank. To put filter back on-stream, follow the procedure for returning to filter after pre-coat.

## SHUT-DOWN AND MAINTENANCE

1. The filter should be shut down when the vacuum gauge reads 15 to 18 inches of mercury. Past this point the filter run becomes uneconomical and harmful to the filter leaves.
2. Shut the pump off. Close the pool return line quickly and then close the main drain and gutter or skimmer line.
3. Open the waste line and empty the tank completely. Wash off any filter aid remaining on the leaves with a hose and flush filter aid settled on the tank floor out the waste line.
4. When filter leaves are clean and tank is empty, close the waste line.
5. Do not attempt to pre-coat reusing the old diatomite. The covers will plug with dirt and shorten the filter cycles. Do not expose leaves or covers to direct sunlight.
6. Occasionally, very short filter cycles are experienced due to gases in the filter leaves. This is recognized by a rapid (one or two day) build-up in vacuum readings. You will also notice a frothing and bubbling on the filter surface when you shut the filter down. These gases usually indicate an air leak in the system, particularly in the seal of the circulation pump. This is also sometimes apparent when the pool has just been filled with fresh water. If this condition is noticeable, your cycles can be extended by 'burping' the filter. As the vacuum begins to increase, the operator stops the filter circulating pump for approximately 30 seconds. At this point the operator will notice that the D.E. on the filter leaf bulges and expands somewhat, releasing the entrapped gases. The circulating pump is started at the time the DE begins to fall off the leaf. If you are concerned that too much D.E. may have fallen off it is advisable to run on pre-coat mode for a brief period before redirecting water to the pool. You will note that the vacuum gauge has been considerably reduced. This 'burp' cycle can be repeated periodically during the cycle until results are no longer visible. At that time the filter should be cleaned. Many operators do this as a matter of routine, even if a system air leak is not suspected.
7. Filter bags (covers) must periodically be cleaned with a mild acid and possibly a degreasing compound. Covers can be cleaned in place. A popular method is the use of oxalic or muriatic acid. Fill the filter tank, then add one pound of oxalic crystals per 16 cubic feet of filter tank or one quart of muriatic acid (34% strength) per 4 cubic feet of filter tank ( cubic feet of filter tank is calculated by multiplying the inside length, width and height of your tank). Put the filter on recycle for 30 minutes to 2 hours. Use a face mask if you plan to observe the cleaning actions. To neutralize the solution before draining to sewer, add soda ash until the pH equals 7.0. Recycle again for just a minute or two. It is **not advisable** to clean the covers in a washer – dryer combination as some shrinkage may occur. Occasionally the filter bags may need to be degreased in addition to the above. A solution of Spic N Span or Calgon is recommended as a grease emulsifier. Also several pool chemical suppliers have chemicals specifically designed for cleaning diatomaceous earth filter leaves and sand filter beds. The leaves should probably be removed from the tank for this process. Degreasing would be done with a scrub brush and bucket.

When the filter has just been cleaned the reading on the vacuum gauge should be zero. Visually inspect each cover periodically to check for torn covers or a dirty, clogged condition which would result in short filter cycles. If the vacuum gauge does not return to near zero after cleaning the covers, it is probably advisable to replace the covers.



SCHEMATIC OF VACUUM D.E. FILTER