Filtegra®

HIGH RATE SAND FILTERS
INSTRUCTION MANUAL

GEMAS

"Pool Technology"

WHAT HAPPENS TO WATER IN YOUR POOL?

This should be a question of prime consideration for all pool owners. In the past some pools did not use filtering systems, the owner was faced with the problem of refilling the pool with clean water when this became necessary. Refilling the pool was laborious, meanwhile the owner had an unsanitary pool with unpleasant bathing owing to the poor clarity water. Today pool owners demand absolute hygiene, crystal clear water and economy of effort. These objectives are achieved by effective filtration and chemical treatment of the pool water.

TYPICAL PROBLEMS

1. Biological contamination. The water is contaminated by microorganisms which may be airborne or introduced by bathers.
   These parasites reproduce rapidly in stiff warm water and algae may form giving a greenish appearance to the pool water.
2. Rainfall and wind may introduce dust, while leaves and seeds which muddy and pollute the pool water.

SOLUTION TO THE PROBLEMS

1. Maintain the correct level of residual chlorine in the water to combat existing microorganisms by its disinfecting action.
   There are other chemicals that may use such as iodine, bromine, ozone and ionic interchange.
   Chlorine based compounds are usually the most economical.
2. Provide the pool with a filtration system (filter and pump) to remove suspended particles from the water.

pH LEVEL

The pH level is an indicator of acidity or alkalinity in the water. The neutral value is 7.0. a Ph level of 0-7 gives levels of acidity whilst, 7-14 gives levels of alkalinity. The pools usual readings vary between 6.8 and 8.4

WHY IS pH IMPORTANT

“THE IDEAL pH VALUE IN A POOL SHOULD BE BETWEEN 7.2 AND 7.6” As previously stated sufficient residual chlorine must exist in the pool to destroy unwanted micro-organisms, in fact the chlorine will only act as a germicide when the pool water has a pH of between 7.2 and 7.6.
There are other reasons which call for a correct pH level reading. Once above 7.6, calcium in the pool will precipitate to a visible cloudy form (accentuated in hard water areas).
This gives a milky appearance to the water, and impedes the filtering process. Deposits may also from on the pool sides and accessories.

Once the pH level falls below 7.0 the pool water becomes corrosive causing eye irritation and affecting mucus membranes. There is also a long-term heat to metallic parts in the pool.

The quality of the pool water is highly dependent on maintaining the correct pH level.

CHLORINE

Standards for amount of residual(free) chlorine in the pool water may vary from country, depending on health authority regulations, typical legal requirements are between 0.2 and 0.6 parts per million (i.e. 0.2 – 0.6 milligrams per liter).

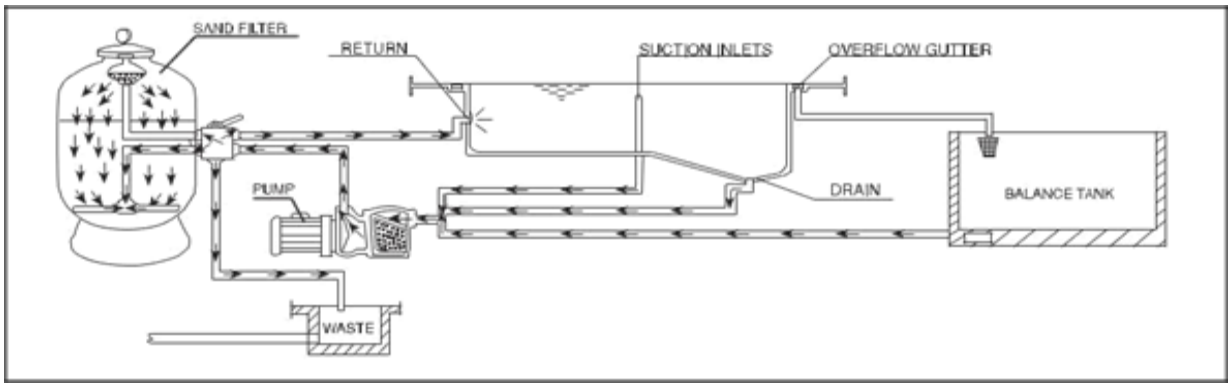
WHAT IS UNDER STOOD BY FREE OR RESIDUAL CHLORINE

Even after the filtering process there are remains certain bacteria to be destroyed by the disinfecting action of the chlorine which is usually acting on the bacteria in the form of hypo chloric acid.
A quantity of chlorine that is added to the water (in excess of the needed to destroy bacteria and oxidize organic metal) remains free to combat new bacteria introduced by bathers or atmospheric agents.
This chlorine remaining in the water in form of hypo chloric acid is known as free or residual chlorine.

FILTRATION

It is essential that the filtration is accompanied by chemical treatment of the pool water. The two processes are complimentary to each other.

WORKING PRINCIPLE



A suction is taken from the main drains on the bottom of the pool and the skimmers at the pool surface or balance tank and fed via separate pipework through the pump to the sand filter.
After filtration the water is returned to pool via return inlets, which are installed on the opposite side of the pool to the skimmers and main drains.
Once in the filter the water is circulated downwards through the silica sand and suspended particles are retained.
The filter sand needs to be washed at intervals to remove the particles it has retained.
This is achieved by reversing the flow through the filter and directing the water containing the dislodged particles to drain.
When the filter pressure reaches over 1,3 Kg/cm² means that the sand filter needs to be backwashed.
Bearing these principles in mind the following installation and operating instructions should not present any problem.

FILTEGRA – NEW GENERATION INNOVATIVE SAND FILTER

It's a brand-new design with wide transparent lid with light button, bacteria free plastic inner smooth shell and monoblock gel-coated exterior body.
Thanks to the large transparent lid and the interior LED light, you can see the contamination of the filter sand and accurately determine the backwash time.
Its inner smooth shell prevents from bacteria and keep the filter clean and thanks to monobloc gel coated body, provides high sealing.
Note: Battery life for lid with light button is approximately 2 years. When the battery runs out, the light needs to be replaced with help of a screwdriver.

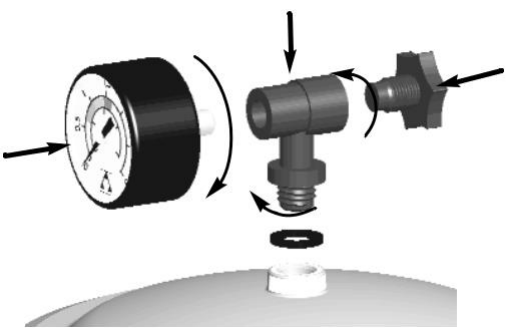
INSTALLATION

The filter should be installed as close as possible to swimming pool and preferably at a level of 0.50 meters below surface of the water in the swimming pool. Make sure there is drainage available at the place where the filter is to be installed.

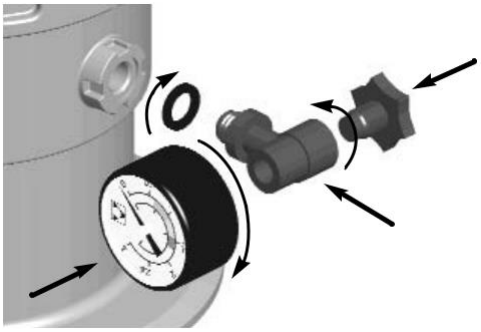
IMPORTANT
Do not use steel pipe and fittings for selector valve connection, it is essential to use plastic pipes and TEFLON tape. Pipe terminals are available either threaded or for solvent fixing 11/2" and 2" sizes. Ask your pool supplier for them.

ASSEMBLY

Follow these indications for a correct assembly of the filter:
1. Place the filter on a horizontal and clean surface.
2.- Place the filter in its final location.
3.- In case of a filter with a lateral valve, install the selector valve in the filter. Make sure that the joints between the valve and the filter are correctly placed.
4.- Perform the three connections of the selector valve: pump piping to the valve, valve to the waste drain and valve to the pool return. Each of these three outlets is clearly identified on the valve.
5.- Set the manometer T, the joint, the manometer and the air drainage (see exploded view). It is not necessary to use Teflon tape, as the water tightness is guaranteed in this case by the joint. Do not tighten the manometer T with a tool, as manually will be sufficient.



Assembly of the manometer (with lateral valve)



Assembly of the manometer (with top valve)

SAND LOAD

In order to obtain maximum efficiency from your filter, it should be filled with silica sand with a grain size classification of 0.5 to 0.7 mm. With the quantity indicated on the plate specifying the characteristics, proceed as follows:

1. Load up when the filter is installed in position and connecting pipes have been joined.
2. Take off the lid and joint.
3. Fill the filter with water to half capacity.
4. Pour the required quantity of sand inside the filter
5. Clean the seating of the joint
6. Fix the filter lid in place

OPERATION

When the filter has been loaded, the sand must be washed, so proceed as follows:

1. Place the selector valve in the "BACKWASH" position.
2. Open the valves controlling the swimming pool suction pipes and run the pump for 4 minutes.
3. Stop the pump and place the handle of the selector valve in the "FILTER" position. When this has been done, the filter will be ready to start the filtering cycles for the water in the swimming pool.

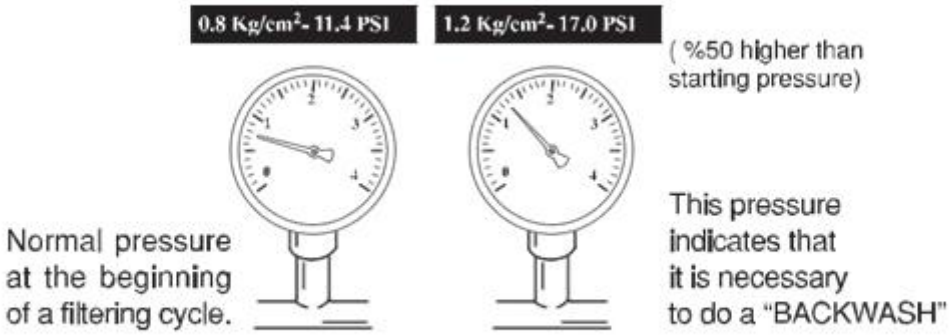
   IMPORTANT
   The pump should be switched off when the position of selector valve handle is being charged.

FILTRATION

With the pump switched off, place the handles of the selector valve in the FILTER position. Switch on the pump

During this operation, it is advisable to observe the pressure gauge for time as this indicates the degree of saturation of the filter. When the pressure reaches a %50 higher value of starting pressure "BACKWASH" should be carried out.

The valves at the bottom of the swimming pool and the skimmers will be regulated according to quantity of floating material found on the surface of the water. Bear in mind that with the catch basin valve fully open there will be little suction from skimmer. If the surface sweep of the skimmers is to be stronger, it is sufficient to reduce the pitch of catch basin.



BACKWASH

Each load of sand forms thousands of channels which pick up all the material contained and caught up in the filtering process, the number of free channels allowing the water to pass is continually decreasing. This is why the pressure rises progressively until it reaches a %50 higher value of starting pressure. At this pressure the filtering sand is unable to collect any more impurities and must be cleaned as follows:
Turn the selector valve to the "BACKWASH" position and with the catch basin return valves open, switch on the pump and run it for 2 minutes. With this operation completed all the dirt blocking the filter will have been drained away.

RECIRCULATE

In this position the selector valve allows the water from the pump to go directly to the swimming pool without passing through the inside of the filter.

WASTE

If the swimming pool cannot drain directly to the main drainage system because there is no drain at the level of the floor of the swimming pool, it must be emptied using the filter pump. In order to do this, the selector valve should be in the "WASTE" position. The motor is run with the catch basin valve open. For the pump provide sufficient suction, the collector and the whole of the catch basin water pipe should be filled with water. Before starting to empty, make sure that the skimmer valves and floor cleaner valves are closed.

RINSE

After carrying out the "BACKWASH "operation on the filter and placing the installation in the "FILTER" position, the water flowing into the swimming pool will be cloudy, for a few seconds, so to prevent it from reaching the swimming pool there is a "RINSE" position for the selector valve which is operated as follows: immediately after the "BACKWASH" put the valve in the "RINSE" position and connect the pump for 1 minute, after which the pump is switched off and the valve placed in the "FILTER" position. This position ensures that the filtered water goes directly to the drain.

CLOSED

As its name indicates, this position is for closing off the water from the filter to the pump and is used for opening the collector prefilter of the pump.

START-UP

When the filter has been loaded, the sand must be washed. Proceed as follows:
1.- Place the selector valve in the "BACKWASH" position.
2.- Open the valves controlling the swimming pool suction pipes and run the pump for 4 minutes.
3.- Stop the pump, place the handle of the selector valve into the "RINSE" position and rinse for 1 min. Then, stop the pump and place the handle of the selector valve into “FILTRATION” (FILTERING) position.

When this has been done, the filter will be ready to start the filtering cycles for the water in the swimming pool.

MAINTENANCE

- Do not use solvents for cleaning the filter, this could damage the filter, especially its finish.
- Always replace the joints and pieces that may not be in good condition.
- Backwash and rinse when needed, as per the instructions specified in this manual.

IMPORTANT
The pump should be switched off when the position of the selector valve handle is being changed.

WINTER PERIOD

In order not to damage the filter during the winter period, please follow the instructions below:

- Perform a backwash and a rinse as previously detailed.
- Remove the water from the filter
- Take off the lid to ventilate the filter in the period of inactivity
- When you need to start up the filter again after a period of inactivity, follow the instructions stated in the paragraph "START UP".

THE MOST COMMON TYPES OF BREAKDOWN

EFFECT	CAUSE	SOLUTION
The filter provides a small volume of filtered water. Vacuum heads have poor suction.	Filter blocked.	Clean filter.
	Motor turning the wrong way.	* Check by the arrow on the body of the pump wich way the motor is turning, if this is not correct, reverse the motor connections.
	Suction pipes are blocked.	Proceed to clean.
The pressure rises rapidly during a filter cycle.	Water pH is high. (Cloudy water)	Decrease the pH.
	Lack of chlorine (Greenish coloured water)	Add chlorine.
The pressure gauge varies considerably.	The pump is taking in air.	Check for leaks in the filter and suction pipes.
	Suction is half closed.	Check that the suction valves are completely open.

If there is no arrow, the direction of the motor can be checked as follows:

Stand in front of the pump, ie. where the inlet pipe is situated (with the motor behind).

Make sure that the direction of the motor is anticlockwise.

SAFETY WARNINGS

- Never start up the system without water.
- Whenever you operate the filter or the selector valve, switch off the pump first.
- Never allow children or adults to sit on the system.
- Do not connect the filter directly to the water network, as the pressure of the water may be too high and exceed the maximum work pressure allowed by the filter.
- Do not clean the lid with solvents, as it may damage its properties (finish, transparency etc.).
- As all the connections are made with joints, it is not necessary to tighten the nuts excessively in order to avoid that some plastic pieces could break.