

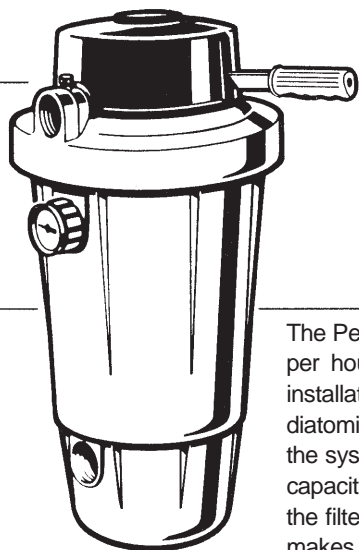
OWNER'S GUIDE

HAYWARD • PERFLEX®

Extended Cycle FILTER

MODEL EC50 SERIES

NSF



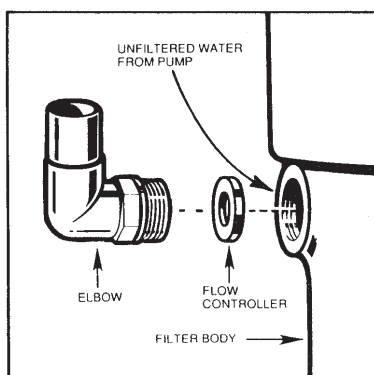
The Perflex Model EC50 is a high performance swimming pool filter with a filtration rating of 3,000 gallons (11 KL) per hour. Manufactured from durable, corrosion-proof materials, it is designed for continuous operation, for installation above or below the pool water line, and for fresh or salt water swimming pools. The EC50 filter uses diatomite filter powder (commonly called D.E.). D.E. is the most efficient dirt remover known. It is normally fed into the system through the skimmer when the filter is initially started; then drained from the filter when its dirt holding capacity has been reached. Through Perflex's exclusive "BUMP" action, the D.E. is periodically regenerated and the filter cycle extended without changing the powder. When the filter powder is totally used, the "BUMP" action makes it possible to drain the used diatomite without backwashing or dismantling the filter.

PUMP SELECTION

To power your Perflex filter, select a continuous duty pump designed for swimming pool service. The filter may be used with a variety of Hayward bases and plumbing connections, or with other suitable surfaces.

It is important to determine whether the pump will be located *above* or *below* the normal pool water line. If the pump is going *above* the water line, a *self-priming* centrifugal pump must be used. *Self-priming* pumps can lift water from a lower level and prime automatically. There is another type of pump simply called the *centrifugal*. Unlike *self-priming* centrifugals which can lift water from a lower level, a centrifugal must be located *below* the water line for dependable priming.

Select a pump with an output rating of between 30 and 65 GPM (114-246 LPM). Since 50 GPM (189 LPM) is the desired maximum filter flow, a flow controller (part number EC1055) is furnished with each unit for use with pumps rated between 40 and 65 GPM (151-246 LPM). Install the flow controller in the filter body as illustrated with an elbow adapter (part number SP1105Z4) or similar adapter. The adapter secures the controller in its proper position.



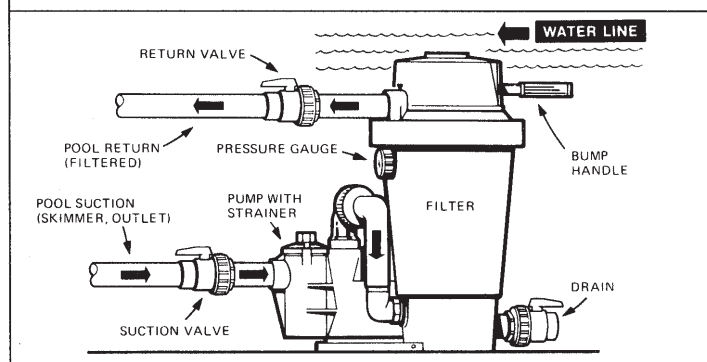
FILTER LOCATION

1. Since plumbing fittings offer a resistance to water flow, locate the filter as close to the swimming pool as practical. Keep the number of fittings to a minimum. Select a well-drained area, one that will not flood when it rains.
2. Set the filter on a level platform or base. Keep the filter "BUMP" handle, drain outlet, and pressure gauge accessible for convenient operation. There is an alternate "BUMP" handle location on the other side of the filter outlet. Instructions for changing the handle position are covered later.
3. Position the filter so the tank can drain by gravity.

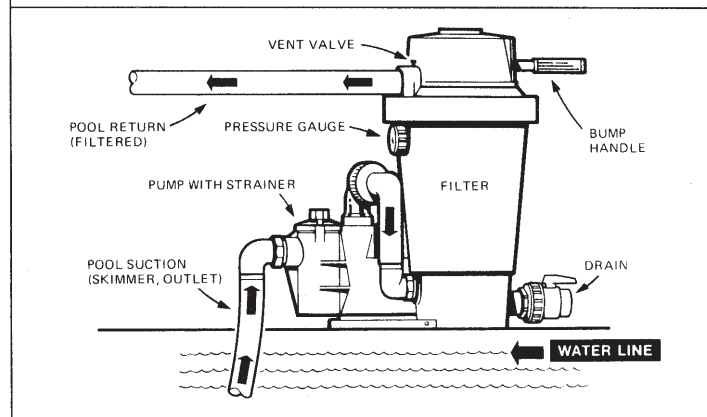
PLUMBING

1. Use 1-1/2" flexible plastic pipe, or hose, joined with insert fittings and stainless steel clamps. If rigid pipe is used, be sure to provide unions for easy servicing.
2. Ball-style control valves are recommended.
3. All plumbing connections on the EC50 filter are 1-1/2" N.P.T. When making connections to the filter, use plastic male-end adapters. Apply three turns of Teflon tape or plastic pipe sealant to the male threads.

PREFERRED FILTER LOCATION – BELOW WATER LINE



ALTERNATE FILTER LOCATION – ABOVE WATER LINE



NOTE: ANSI/NSPI-4 Article V, standard for above-ground and on-ground pools, advises that components such as the filtration system, pumps and heater be positioned so as to prevent their being used as a means of access to the pool by young children.

Screw the fitting into the thread hand tight; then, using a wrench, tighten one more full turn. Additional tightening is unnecessary and could result in broken or damaged fittings.

4. Refer to the diagrams for suggested valving.
5. Connect the pool suction plumbing between the skimmer, pool outlet, etc., and the pump.
6. Connect pool return plumbing.
7. If pressure gauge is not installed, apply Teflon tape to the gauge threads, and carefully screw the gauge into the threaded hole in the 1-1/2" access plug/gauge adapter.
8. A drain plug is furnished with each filter and is all that is needed for complete filter draining. If desired however, drain piping may be extended from the filter by using the optional Ball Drain Valve and an appropriate length of 1-1/2" pipe. Piping must slope away from the filter so the tank can drain by gravity. *DO NOT* use roll-flat type hose for drain piping.
9. Check for joint leaks before operating the system.

BEFORE STARTING THE FILTER

1. Obtain a supply of operating chemicals, diatomite, and a pool test kit. Use only the swimming pool grades of diatomite, such as:

CELATOM	Eagle-Picher Industries, Inc.
AQUA-CEL	Johns-Manville Products Corporation
DICALITE 4200	Grefco, Inc.
WITCO	Witco Corporation

The EC-50 filter uses a 5 lb. (2.3 kgs.) charge of diatomite, roughly 7 leveled coffee cans full, or 5 leveled scoops using Hayward's EC-10SC.

2. Superchlorinate the pool water by adding unstabilized granular or liquid chlorine. Stabilized forms of chlorine are recommended for normal daily use after the initial clean up of the water. Follow chemical manufacturer's recommendations for superchlorination and daily use.

STARTING THE FILTER

Close the filter drain and the vent valve. All suction and discharge valves **must** be open when starting the pump. Failure to do so could cause severe personal injury and/or property damage.

Prime and start the pump following the manufacturer's instructions. Air trapped in the system will automatically vent to the pool. When there is a steady flow of water returning to the pool, the filter is ready for precoat. *DO NOT* operate the filter for more than one minute without the precoat charge.

PRECOATING

Scoop diatomite into the system through the skimmer as fast as the plumbing will take it. Note and record the pressure gauge reading after the diatomite has been added. This is the "precoat pressure."

FILTERING

Filtration starts as soon as the filter has been precoat. As the filter removes dirt from the pool water, the accumulated dirt causes a resistance to flow. As a result, the gauge pressure will rise and the flow will decrease. When the pressure rises 7-10 psi (.49-.70 Bar) above the precoat pressure, regenerate the filter.

REGENERATION (Extending the Cycle)

Stop the pump. Move the bump handle down slowly, then up briskly. Repeat 3 times. Restart the pump and filtration will resume at near the original flow and pressure.

After each regeneration, and until the filter is cleaned, there may be a slight increase in the starting pressure. This is the result of dirt accumulating within the filter and is completely normal.

CLEANING

Cleaning is recommended when the gauge pressure rises more than 10 psi (.70 Bar) in less than a 24 hour period or when cloudy water returns to the pool for more than 30 seconds after regeneration. To clean, first stop the pump; then move the bump handle down slowly, then up briskly. Repeat 8 times. Open the filter drain and open the vent valve (Note: if the filter is installed below the pool water line, close the suction and return valves) and allow water and dirt to empty completely.

After the filter has drained, and with the drain still open, run the pump for a few seconds to flush out any dirt remaining in the bottom of the filter. (Note: If the filter is installed below the pool water line, opening the *suction* valve for a few seconds with the pump off will adequately flush the unit.)

Close the filter drain and the vent valve. Open the suction and return valves (when used). Start the pump and let the filter fill with water and repeat the CLEANING procedure. This completes the cleaning phase. The filter is now ready for recharging. Proceed as in STARTING THE FILTER and PRECOATING.

VACUUMING

Vacuuming can be performed directly into the filter whenever needed. For fastest results, regenerate the filter before and after each vacuuming operation.

TO CHANGE BUMP HANDLE POSITION

1. Remove the bump handle grip. Carefully pry the bump cover from the head retaining groove and slide the cover off the handle.
2. Using a drift (or 10 penny nail), tap the pivot pin out of the filter head anchor point, freeing the end of the handle.
3. Rotate the bump handle to the alternate position and align the handle and the head anchor holes. Tap the pivot pin in place.
4. Reinstall the bump cover and grip.

GAUGE/INSPECTION PORT ADAPTER

The gauge/inspection port adapter provides an easy way to look into the filter at the "top" area of the tube nest assembly. It gives a quick inspection capability to check tube nest condition (algae, calcium or D.E. build-up, etc.) without requiring removal of the filter head. It also allows you to wash off trapped debris and excess D.E. from between the Flex-Tubes and from under the tube sheet by spraying with a garden hose, or use Hayward's Jet-Action Cleaning Wand (EC2024) which attaches to a garden hose.

To remove adapter—shut off pump and valves and drain water in filter to below port. Unscrew adapter, with gauge, counterclockwise.

To reinstall—thread adapter, with O-ring in place, securely into filter housing.

PREVENTIVE MAINTENANCE

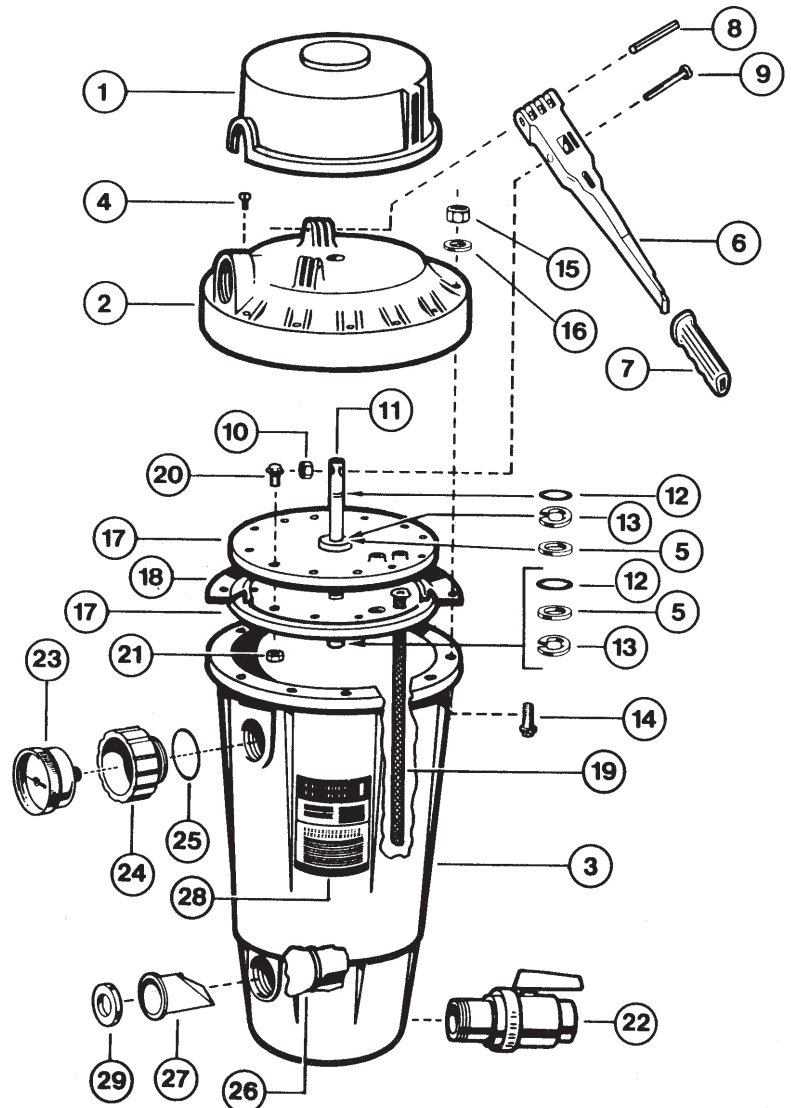
While Perflex filters are basically resistant to the difficulties often encountered as a result of chemical build-up in swimming pools, it is important to keep in mind that the mineral content in a pool increases every day as a result of the chemicals added and the normal water evaporation process. If the concentration of minerals is allowed to get too high, the minerals will form deposits on the Flex-Tubes inside the filter, and will eventually result in shortened filter cycles. To guard against this, a yearly chemical cleaning (soaking) of the Flex-Tube assembly is suggested. Use commercially available 20% muriatic acid added to water in 1 to 1 ratio; or use other commercial filter element cleaner mixed according to the package instructions. Use a plastic container and take extreme caution when handling cleaning agents as they can be harmful to the eyes, skin and clothing. After cleaning, thoroughly flush all affected parts with cold water.

PERFLEX SPECIFICATIONS

MODEL NO.	EFFECTIVE FILTRATION RATE		DESIGN FLOW RATE		PRESSURE LOSS AT DESIGN FLOW RATE		MAXIMUM WORKING PRESSURE		REQUIRED CLEARANCE				RECOMMENDED AMOUNT OF D.E.	
	FT ²	M ²	GPM	LPM	PSI	BAR	PSI	BAR	SIDE		ABOVE		LBS	KGS
									IN	MM	IN	MM		
EC50	25	2.33	50	189	1	0.07	50	3.45	6	152	10	254	5	2.3

PARTS — MODEL EC50 FILTER

REF. NO.	PART NO.	DESCRIPTION	NO. REQ'D.
1	ECX11156	Bump Mechanism Cover	1
2	ECX10334	Filter Head w/Vent Valve	1
3	ECX11344	Filter Body w/Flow Diffuser	1
4	ECX1321A	Vent Valve w/O-Ring	1
5	ECX1011	Thrust Washer	2
6	ECX1040	Bump Handle Assembly	1
7	ECX1037B	Bump Handle Grip	1
8	ECX100Z9	Pivot Pin	1
9	ECX4236	Shoulder Screw	1
10	ECX4249	Locknut	1
11	ECX1009	Bump Shaft	1
12	ECX9611246	O-Ring	2
13	ECX1014	Retainer	2
14	ECX10271	Filter Head Screw	12
15	ECX176855	Filter Head Nut	12
16	ECX1077	Washer	12
17	ECX1004	Tube Sheet (Top or Bottom)	2
18	ECX1003	Diaphragm Gasket	1
19	ECX1032	Flex-Tube™ Assembly	72
20	SPX1500N1	Tube Sheet Screw	12
21	SPX1500Y1	Tube Sheet Nut	12
22	SP0723	1-1/2" Ball-Type Drain Valve	1
23	ECX27091	Pressure Gauge, Back Mount	1
24	ECX12866	Gauge/Inspection Port Adapter	1
25	ECX1287	Adapter O-Ring	1
26	ECX1256	Flow Diffuser w/Check Valve	1
27	ECX4077B1	Check Valve	1
28	ECX1028	Decal — Operation	1
29	ECX1055	Flow Controller	1



WINTERIZING

In areas where sub-freezing temperatures can be expected, the filter should be drained and removed from its operating location and stored indoors. Prior to removal, cycle the filter as described under CLEANING.

SERVICE & REPAIRS

Consult your local authorized *Hayward-Perflex* dealer or service center. No returns may be made directly to the factory without the expressed written authorization of Hayward Pool Products, Inc.

ALGAE CONTROL

Algae is a form of plant life which can vary in size from a few thousandths of an inch to the size of a small tree. Of the many forms of algae, those most frequently found in swimming pool water are microscopic in size and green in color.

Algae readily grows in sunlight and can, under favorable conditions, quickly overgrow a swimming pool turning it completely green in just a few hours. On the other hand, swimming pool water can be kept unfavorable to algae growth simply by maintaining a chlorine level of at least 1.0 ppm in the water at all times. The chlorine level should be checked at least once a day using a suitable test kit.

If an algae condition develops and the pool water "blooms" green, superchlorination of the pool will be necessary to clear it. Add unstabilized granular chlorine, or liquid chlorine. Follow

chemical manufacturer's recommendation for superchlorination. The algae will quickly become inactive and can then be removed by the filter. Live algae, on the other hand, multiplies so fast that the filter cannot keep up with its growth rate. In an active algae situation, it may be necessary to regenerate the Perflex filter as frequently as every 2 to 3 hours.

When correctly used, commercial algaecides are effective against algae, though algaecides should be used in conjunction with, and not as a substitute for, regular chlorination or superchlorination.

Maintaining a chlorine level of at least 1.0 ppm in the pool water at all times is the most effective way to prevent algae growth in swimming pools.

POOL CHEMISTRY GUIDELINES

SUGGESTED POOL CHEMISTRY LEVELS		ACTION REQUIRED TO CORRECT POOL CHEMISTRY	
		TO RAISE	TO LOWER
pH	7.2 to 7.6	Add Soda Ash	Add Muriatic Acid or Sodium Bisulphate
TOTAL ALKALINITY	100 to 130 ppm	Add Sodium Bicarbonate	Add Muriatic Acid
CHLORINE (UNSTABILIZED)	0.3 to 1.0 ppm	Add Chlorine Chemical	No action - chlorine will naturally dissipate
CHLORINE (STABILIZED)	1.0 to 3.0 ppm	Add Chlorine Chemical	No action - chlorine will naturally dissipate
CHLORINE STABILIZER (Cyanuric Acid)	40 to 70 ppm	Add Stabilizer	Dilution - partially drain & refill pool with water that has not been treated with Cyanuric Acid.



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