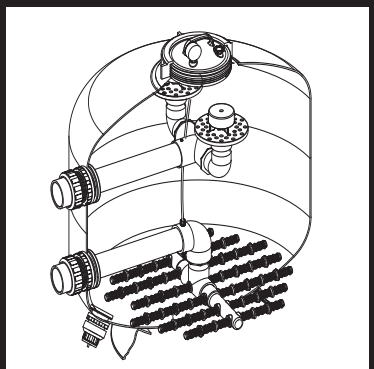
HAYWARD®

HCF Series

Commercial Sand Filters

Installation and Operation Manual



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HCF230C
HCF234C
HCF236C
HCF336C

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Important Safety Instructions

Basic safety precautions should always be followed, including the following: Failure to follow instructions may result in injury.

This is the safety-alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words, and be alert to the potential for personal injury.

WARNING warns about hazard that could cause serious personal injury, death or major property damage and if ignored presents a potential hazard.

CAUTION warns about hazards that will or can cause minor or moderate personal injury and/or property damage and if ignored presents a potential hazard. It can also make consumers aware of actions that are unpredictable and unsafe.

The NOTICE label indicated special instructions that are important but not related to hazards.



WARNING – Read and follow all instructions in this owner's manual and on the equipment. Failure to follow instructions can cause severe injury and/ or death.

WARNING – This product should be installed and serviced only by qualified professionals.

CAUTION – All electrical wiring MUST be in conformance with all applicable local codes, regulations, and the National Electrical Code (NEC).

WARNING – To reduce risk of injury, do not permit children to use or climb on this product. Closely supervise children at all times. Components such as the filtration system, pumps, and heaters must be positioned to prevent children from using them as a means of access to the pool.

WARNING – Pool and spa components have a finite life. All components should be inspected frequently and replaced at least every seven years, or if found to be damaged, broken, cracked, missing, or not securely attached.

WARNING – Suction Entrapment Hazard. Suction in suction outlets and/ or suction outlet covers, which are damaged, broken, cracked, missing, or unsecured cause severe injury and/ or death due to the following entrapment hazards (symbols compliments of APSP):



Hair Entrapment – Hair can become entangled in suction outlet cover.

Limb Entrapment – A limb inserted into an opening of suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in mechanical bind or swelling of the limb.



Body Suction Entrapment – A differential pressure applied to a large portion of the body or limbs can result in an entrapment.



Evisceration/ Disembowelment – A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration/ disembowelment.



Mechanical Entrapment – There is potential for jewelry, swimsuits, hair decorations, fingers, toes, or knuckles to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.



WARNING – To Reduce the Risk of Entrapment Hazards:

- When outlets are small enough to be blocked by a person, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall), must be installed a minimum of three feet (3') (.91 meter) apart, as measured from near point to near point.
- Dual suction fittings shall be placed in such locations and distances to avoid "dual blockage" by a user.
- Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas.
- The maximum system flow rate shall not exceed the values shown in the "Pipe Sizing Chart" found on page 7.
- Never use pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, or not securely attached suction outlet components immediately.
- In addition to two or more suction outlets per pump installed in accordance with latest APSP standards and CPSC guidelines, follow all national, state, and local codes applicable.
- Installation of a vacuum release or vent system, which relieves entrapping suction, is recommended.

HAYWARD®



WARNING – Hazardous Pressure. Pool and spa water circulation systems operate under hazardous pressure during start-up, normal operation, and after pump shut-off. Stand clear of circulation system equipment during pump start-up. Failure to follow safety and operation instructions could cause property damage, severe personal injury, or death. Before servicing pool and spa water circulation system, all system and pump controls must be in off position and filter manual air relief valve must be in open position. Before starting system pump, all system valves must be set in a position to allow system water to return back to the pool. Do not change filter control valve position while system pump is running. Before starting system pump, fully open filter manual air relief valve. Do not close filter manual air relief valve until a steady stream of water (not air or air and water mix) is discharged from the valve. All suction and discharge valves MUST be OPEN when starting the circulation system. Failure to do so could result in severe personal injury and/ or damage.



WARNING – Separation Hazard. Failure to follow safety and operation instructions could result in violent separation of pump components. Strainer cover must be properly secured to pump housing. Before servicing pool and spa circulation system, all system and pump controls must be in off position and filter manual air relief must be in open position. Do not operate pool and spa circulation system if a system component is not assembled properly, damaged, or missing. Do not operate pool and spa circulation system unless manway cover is in seated position in filter body. All suction and discharge valves MUST be OPEN when starting the circulation system. Failure to do so could result in severe personal injury and/ or property damage.



WARNING – Never operate or test the circulation system at more than 50 PSI maximum.

WARNING – Failure to install according to defined instructions may result in severe personal injury or death.



WARNING – ELECTROCUTION HAZARD. High voltage electricity is present in the pool and spa equipment. High voltage electricity can cause shock and electrocution. Shock and electrocution can result in severe personal injury or death.

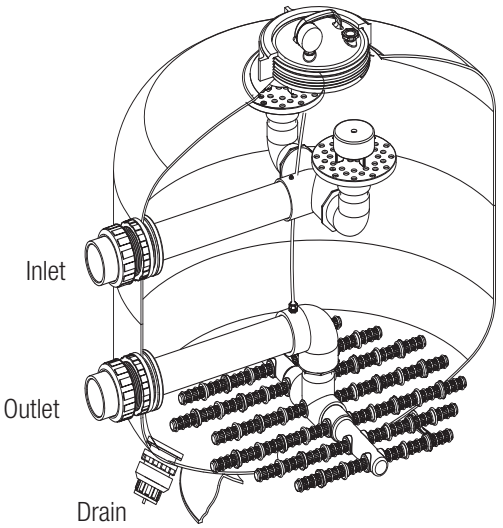
- All electrical wiring MUST be in conformance with applicable local codes, regulations and the National Electrical Code (NEC).
- Before performing any service or maintenance on electrical equipment turn off all electrical power.
- Contact a licensed electrician or building inspector for information on local electrical codes for bonding requirements.
- Verify water discharge from the filter manual air relief valve is directed away from electrical devices.
- Do not locate pump controls over or near filter.

General

NOTICE – Standards for public and private pools vary by jurisdiction. It is the responsibility of the installer to be aware of these codes before designing, specifying or installing any piece of equipment for a swimming pool or spa.

Swimming Pool Filters

Filters are, without a doubt, the most important accessory used in the treatment of swimming pool water. Their purpose is to eliminate suspended particles from the circulating water, thus clarifying the water. The principle operation consists of passing the swimming pool water through a bed of sand which will retain any particles that are suspended in the water.



It should be kept in mind that the filtration system consists of a number of elements, such as metering equipment, pumps, pool shell fittings and pipe work, which ensure the correct suction and return flows that will affect the resultant condition of the treated water.

The quality of filtration depends on various factors, the size and shape of the sand, the sand bed depth, characteristics of the sand such as granular size, density, etc. A most important parameter is the water filtration rate. Other factors affecting the selection of a filter are the materials used for its construction, the working temperature, and the operating pressure.

Hayward® filters are manufactured from proprietary resins and fiberglass, they are virtually corrosion-proof. The internal fittings (diffuser and lateral system) are manufactured from PVC and ABS. They are unaffected by salt water and are manufactured for a working pressure up to 50 PSI and a maximum working temperature of 104º F.

Filter Characteristics

Choose the filter or filters that meet the local turnover time requirements. Remember it is possible to add filters together to obtain the correct amount of filtration area required. Note: when using multiple filters, they must be plumbed in parallel configuration. It is also a good idea to oversize the surface area required by 10% or more, this will allow for better water quality. When possible, use more than one filter in conjunction, this will allow one filter to be serviced while one is still functioning.

When sizing the plumbing for a filtration package be sure to keep in mind that the velocity of the water in the pipes is very important. Each country or state may have different maximums for velocity in the plumbing. The recommendations of APSP-7 should be followed.

Installation Characteristics

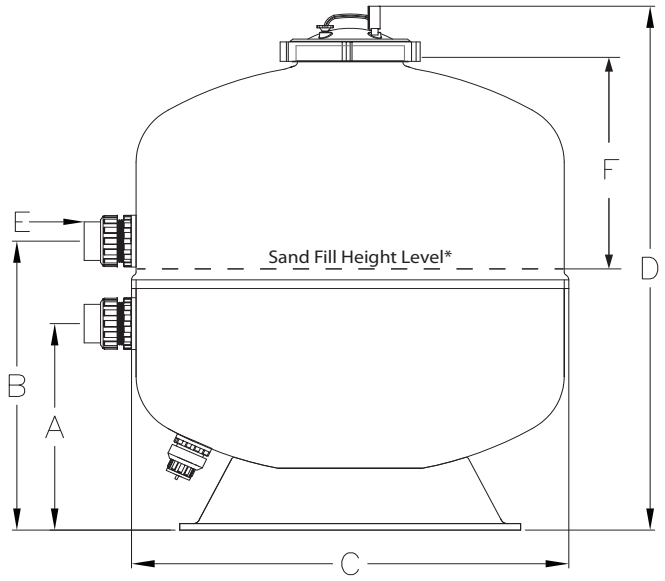
To ensure selection of the correct pump size, the required flow must be obtained by taking the system head into consideration. The system head is the added difficulty to move water through the system presented by using, elbows, piping, tees, changes in elevation, etc.

It is also recommended that the discharge from each pump is brought together in a single manifold to the filters. This will allow for greater flow rates for the backwash cycle.

- Install a check valve ahead of filter inlet to prevent contaminants from draining back into the pool.
- Install a check valve between filter and heater to prevent hot water from backing up into filter and damaging internal components.
- Disposal of “waste water” must meet local, state and national codes.
- See Chart on page 4 for vertical and horizontal clearance.

Hayward Recommended Minimum Filter Piping

Filter Model	Port Size	Multi-Port Valve	Piping Kit	Flange P/N
HCF230C	2”	HCV275C	w/ Valve	N/A
HCF234C	2”	HCV275C	w/ Valve	N/A
HCF236C	2.5”	HCV2575C	w/ Valve	N/A
HCF336C	3”	HCV375C	w/ Valve	N/A



Filter Model Number	Dimensions (Inches)						Filter Area		Max Flow/ Backwash Rate		Filter Sand Qty* (Lbs)	Clearance (Inches)	
	A	B	C	D	E	F	Sq. Ft.	Sq. M	GPM	LPM		Vertical	Horizontal
HCF230C	16.5	24.0	31.49	43.48	2	13.5”	4.90	.45	100	378	600	18	4
HCF234C	18.75	26.25	33.85	43.48	2	17.5”	6.31	.59	120	454	750	18	4
HCF236C	18.75	26.25	37.40	43.48	2.5	20.5”	7.05	.65	143	541	900	18	4
HCF336C	18.75	26.25	37.40	43.48	3	20.5”	7.05	.65	143	541	900	18	4

* Fill height level (F) may vary depending on media size. Always fill with the required “Filter Sand Quantity” shown above.

Installation

WARNING – Read and follow all instructions.

WARNING – This product should be installed and serviced only by a qualified professional.

Note: Filters are supplied on pallet with accessories included. Due to their weight and size it is recommended that mechanical means be employed to move the filter into position. It is also very important to inspect the filters carefully before installing. Make note on the shipping paperwork if there is any damage to the packaging. FRP filters can be damaged during transportation and it is the responsibility of the installer to inspect at the time of delivery.

Damages to filters from transportation that are not noted on the bill of lading are not covered by Hayward’s warranty policy and all costs to repair will be the responsibility of the owner.

Never put the sand into the filter until it is in its final working position and all prior steps are complete. The filter should be accessible for periodic maintenance or media change. It is absolutely necessary to leave a minimum access space around the filter(s), as defined above.

The equipment room should be well ventilated and provided with adequate drainage capabilities so that should an emergency occur, resulting in flooding from a pipe, filter or pump, the water can be easily removed to avoid property damage. If drainage cannot be supplied directly from the equipment room, consideration should be given to the installation of alternate system to remove water from the mechanical room, per federal, state and local codes.

Filter Installation

When moving the filter(s) into place, not use the manway cover or opening to maneuver the filter. Be sure to use care if moving by hand. Before continuing, be sure that the filter(s) are in the desired location with the connections facing the direction necessary for proper installation. It is also very important to make sure that the filter is sitting on a level, hard surface.

It is possible that during transportation, some internal components have loosened. It will be necessary to remove the filter manway cover and enter the filter, being careful not to break any of the connections. By hand, check the tightness of all the laterals in the bottom of the filter making sure they are firmly tightened. By hand, check the tightness of all the distributors in the top of the filter making sure they are firmly tightened.

Tank Positioning

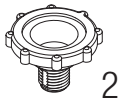
Chalk lines are recommended for multiple tank installations and should be laid for positioning each tank. Attention must be paid to the location and routing of the influent, effluent and waste line plumbing when planning the proper location of the filter system. The tanks must be level and parallel to each other or damage may occur to filter tanks, operating valves or connecting piping.

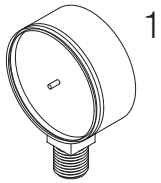
Installation of the Pressure Gauge

The pressure gauge assembly will come in a bag hanging from a diffuser within the filter. Remove all the parts from the bag and apply Teflon tape to all threaded connections. Thread the pressure gauge (1) and bleeder valve (2) into manway cover (not shown). Once the system is started, open bleeder valve (2) to bleed any air that might have been trapped in the filter during startup.

1 - Pressure Gauge

2 - Bleeder Valve





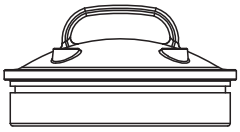
Removing the Manway Cover

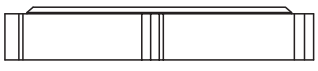
WARNING This product should be installed and serviced only by a qualified pool professional. Your filter comes with a filter manway cover pre-installed from the factory. For qualified pool professionals only: If filter manway cover needs to be serviced, follow these instructions carefully.

1. Turn off all system circulation pumps and all electrical power in the equipment controls.
2. Set all system valves in a position to prevent water from flowing to the filter.
3. The manual air bleed valve (vent valve) must be placed in the OPEN position. Wait until all water leakage has stopped.
4. Remove the locking ring by turning it counter clockwise and store away.
5. Remove the polycarbonate manway cover and o-ring.

Re-installing the Manway Cover

1. Inspect the manway cover and o-ring, replace as needed.
2. With a clean cloth, wipe inside neck where o-ring seals manway seat. Remove all dirt and debris.
3. Seat the o-ring into the groove of the lid.
4. Use o-ring lube to lubricate the o-ring. (do not use any petroleum based lubes this will void warranty)
5. Place the lid in the opening of the filer neck and press down by hand until fully seated to the neck.
6. Re-install the lock ring by hand. Do not over-tighten.





Manway Cover Nut Tightening Sequence

Testing Filter

Before adding any sand to the filter, it is very important to test the system with water only. All filters are tested with high pressure before leaving the factory. It is important to test the system without sand first, to check for leaks. Open the air bleeder valve. Fill the system with water. When water, not water and air, is discharged from the air bleeder valve, close the air bleeder valve. Run system as normal and check for leaks. If there is a problem with the test, contact Hayward customer service immediately. If sand is added before the test and there is a problem with the filter, the sand will need to be evacuated in order to inspect for potential damage. Hayward will not be responsible for the removal and replacement of the sand for warranty or repair work, nor will Hayward provide labor to evacuate and replace the sand for repair work done due to transportation or installation damage. This is also a good chance to check all of the system plumbing. Do not drain the water from the filter after the testing sequence.

Installation of the Sand

After testing has been finished and the system is 100% operational, add the filtration sand required. Use #20 silica sand (.45 - .55 mm). Open the vent valve, remove the manway cover and seal from the filter (page 5). Ensure the filter is full of water up to the inlet port. The proper amount of sand is listed in on page 4. If a diffuser head is directly underneath the manway opening, cover it with plastic and tape to prevent sand from entering the plumbing.

Notice - Remove any plastic and tape from the diffuser after the sand is poured in the filter and before starting the system.

Now, replace the lid and lock ring cover and seal into the filter tank (page 5). Be sure that the lid and filter neck is free of debris. If the sealing surfaces are not free of sand, the seal will not seat properly and could cause the filter to leak at the lid. Use the air bleeder valve to remove air from the filter. Put the filter valves into the backwash mode, turn the pump ON, (see next section) and run for about 3 to 5 minutes. This will level the sand inside the filter. Turn pump OFF, put the valves into filter position and the system is ready for operation.

Operation

Filtration

Note: Hayward Commercial offers a complete line of valves and connection kits for the Hayward line of Commercial Pool Filters.

Use the Hayward 2" Multi-Port valve (HCV275) for the HCF230C, HCF234C, HCF236C and HCF336C filters.

With the pump turned OFF, arrange the valve(s) for filtration. Start pump, open air relief vent valve until solid stream of water is coming out. Close the vent valve and read the pressure gauge. This is the normal start up pressure when the filter sand is clean. Make a note of the start up pressure.

When the pressure gauge shows a pressure rise of 7 to 10 psi above the start up pressure, it is time to backwash the filter.

Backwash

NOTICE – Check the water level in the skimmer opening before and after backwashing. Replace water after backwashing to at least 2 inches above the bottom of the skimmer opening.

To backwash the filter, stop the pump, set the valve(s) into the "Backwash" position and restart the pump. The backwash cycle should be run for 3 to 5 minutes or until clean. Once backwash is complete, turn pump off and set valve(s) to the "Filter" position and start pump.

Pressure Surge Hazard- Failure to turn off filter pump before changing valve position can result in personal injury or property damage. It is very important to turn off the filter pump(s) prior to changing valve(s) position.

Changing of the Sand

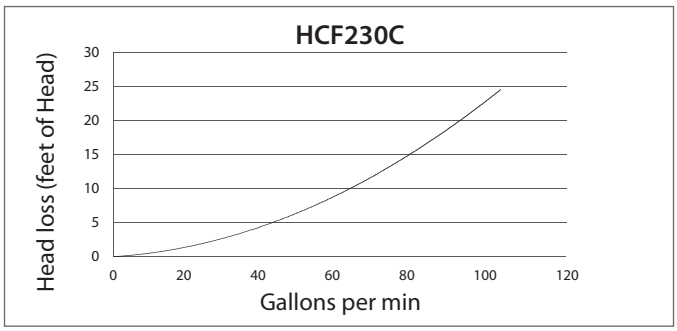
The procedure for changing the filter sand is as follows:

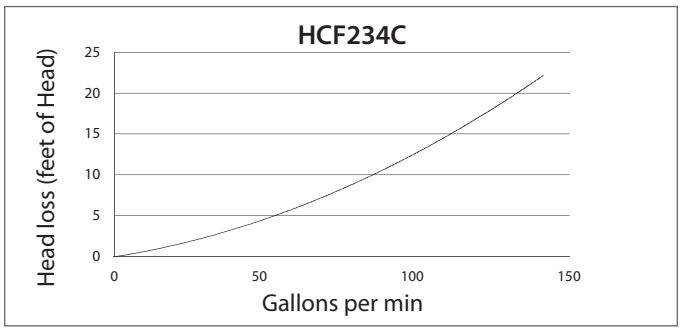
1. WARNING - Turn pump(s) OFF. Open vent valve. Close necessary valves to isolate filter.
2. Remove manway cover and seal from filter (page 5). Open drain port to drain the water from the filter.
3. Using a shop vacuum or a small bucket remove the sand.
4. Using a hose, spray the sand to loosen if necessary.
5. Clean remaining sand from the walls as best as possible with a hose and vacuum.
6. Add the new sand as required in the table on page 4.
7. Replace the manway cover and seal.

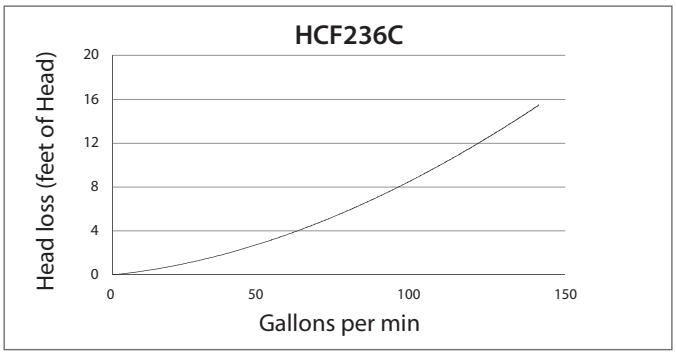
Winterizing

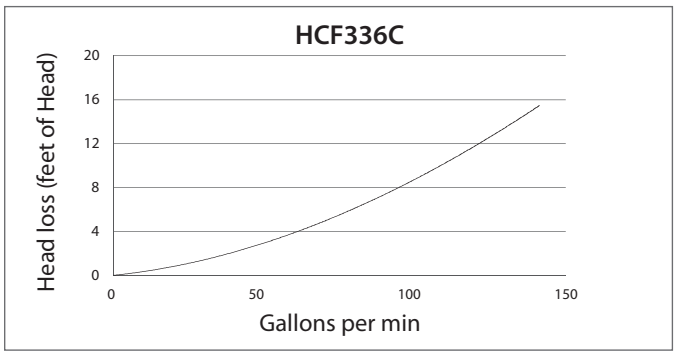
Where freezing can occur, be certain to drain the water from the filter tank prior to freezing conditions.

Head Loss

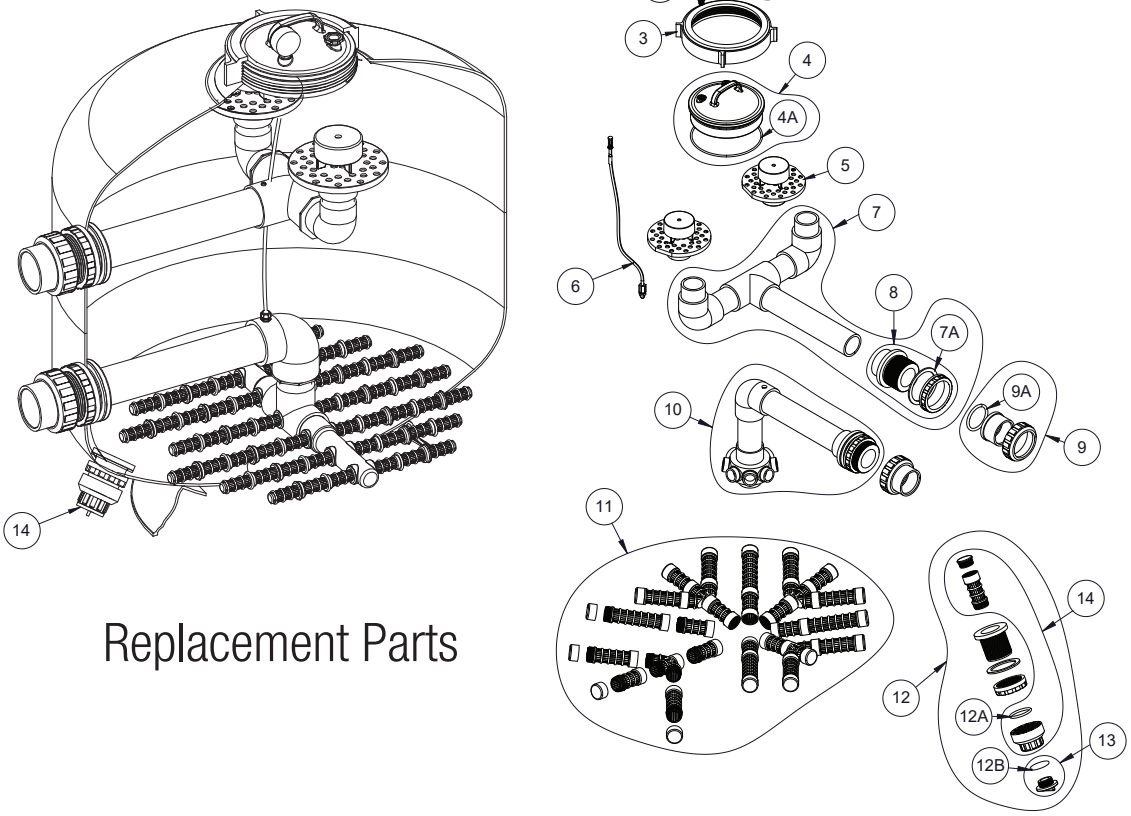








Acceptable Pipe Size for Maximum Recommended System Flow Rates			
Pipe Size	**Flow Rate in gpm & (lpm)**	**Pipe Size**	**Flow Rate in gpm & (lpm)**
2" (63mm)	90 gpm (340 lpm)	4" (100mm)	350 gpm (1325 lpm)
3" (90mm)	200 gpm (757 lpm)	6" (150mm)	800 gpm (3028 lpm)



Replacement Parts

HCF230C

ITEM#	Hayward PN's	DESCRIPTION	QTY.
1	HCXFWPG001	Pressure Gauge 0-60 Psi	1
2	HCXFWARV002	Air Relief Valve & O-Ring Kit	1
3	HCXFWLR003	Top Lid Locking Ring	1
4	HCXFWLIDKIT004	8" Clear Lid & O-Ring Kit	1
4A	HCXFWLOR004A	8" Clear Lid O-Ring	1
5	HCXFWDIF005	2" Diffusor Hydrodome	2
6	HCXFWVTKIT006	Vent Tube Kit	1
7	HCXFW2DIS007	HCF230C 2" Distributor Assy	1
7A	HCXFW2BHG007A	2" Bulkhead Gasket (2 Pack)	2
8	HCXFW2BHK008	2" Bulkhead Kit	2
9	HCXFW2UNAD009	2" Union Half Adapter	2
9A	HCXFW2UNAOR009A	2" Union O-Ring (2 Pack)	2
10	HCXFW2COL010	HCF230C 2" Collector Assy	1
11	HCXFWLATKIT011	HCF230C Lateral Kit	1
12	HCXFWDPA012	1.5" Drain Port Assy	1
12A	HCXFWDPOR012A	Media Drain Cap O-Ring	1
12B	HCXFWDPOR012B	Water Drain Plug O-Ring	1
13	HCXFWDPCKIT013	Water Drain Plug & O-Ring Kit	1
14	HCXFWDPCKIT014	Media Drain Cap & O-Ring Kit	1

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HCF234C

ITEM#	Hayward PN's	DESCRIPTION	QTY.
1	HCXFWPG001	Pressure Gauge 0-60 Psi	1
2	HCXFWARV002	Air Relief Valve & O-Ring Kit	1
3	HCXFWLR003	Top Lid Locking Ring	1
4	HCXFWLIDKIT004	8" Clear Lid & O-Ring Kit	1
4A	HCXFWLOR004A	8" Clear Lid O-Ring	1
5	HCXFWDIF005	2" Diffusor Hydrodome	2
6	HCXFWVTKIT006	Vent Tube Kit	1
7	HCXFW2DIS107	HCF234C 2" Distributor Assy	1
7A	HCXFW2BHG007A	2" Bulkhead Gasket (2 Pack)	2
8	HCXFW2BHK008	2" Bulkhead Kit	2
9	HCXFW2UNAD009	2" Union Half Adapter	2
9A	HCXFW2UNAOR009A	2" Union O-Ring (2 Pack)	2
10	HCXFW2COL110	HCF234C 2" Collector Assy	1
11	HCXFWLATKIT111	HCF234C Lateral Kit	1
12	HCXFWDPA012	1.5" Drain Port Assy	1
12A	HCXFWDPOR012A	Media Drain Cap O-Ring	1
12B	HCXFWDPOR012B	Water Drain Plug O-Ring	1
13	HCXFWDPCKIT013	Water Drain Plug & O-Ring Kit	1
14	HCXFWDPCKIT014	Media Drain Cap & O-Ring Kit	1

HCF236C

ITEM#	Hayward PN's	DESCRIPTION	QTY.
1	HCXFWPG001	Pressure Gauge 0-60 Psi	1
2	HCXFWARV002	Air Relief Valve & O-Ring Kit	1
3	HCXFWLR003	Top Lid Locking Ring	1
4	HCXFWLIDKIT004	8" Clear Lid & O-Ring Kit	1
4A	HCXFWLOR004A	8" Clear Lid O-Ring	1
5	HCXFWDIF005	2" Diffusor Hydrodome	2
6	HCXFWVTKIT006	Vent Tube Kit	1
7	HCXFW2DIS207	HCF236C 2.5" Distributor Assy	1
7A	HCXFW2BHG207A	2.5" Bulkhead Gasket (2 Pack)	2
8	HCXFW2BHK208	2.5" Bulkhead Kit	2
9	HCXFW2UNAD209	2.5" Union Half Adapter	2
9A	HCXFW2UNAOR209A	2.5" Union O-Ring (2-Pack)	2
10	HCXFW2COL210	HCF236C 2.5" Collector Assy	1
11	HCXFWLATKIT211	HCF236C Lateral Kit	1
12	HCXFWDPA012	1.5" Drain Port Assy	1
12A	HCXFWDPOR012A	Media Drain Cap O-Ring	1
12B	HCXFWDPOR012B	Water Drain Plug O-Ring	1
13	HCXFWDPCKIT013	Water Drain Plug & O-Ring Kit	1
14	HCXFWDPCKIT014	Media Drain Cap & O-Ring Kit	1

HCF336C

ITEM#	Hayward PN's	DESCRIPTION	QTY.
1	HCXFWPG001	Pressure Gauge 0-60 Psi	1
2	HCXFWARV002	Air Relief Valve & O-Ring Kit	1
3	HCXFWLR003	Top Lid Locking Ring	1
4	HCXFWLIDKIT004	8" Clear Lid & O-Ring Kit	1
4A	HCXFWLOR004A	8" Clear Lid O-Ring	1
5	HCXFWDIF005	2" Diffusor Hydrodome	2
6	HCXFWVTKIT006	Vent Tube Kit	1
7	HCXFW2DIS307	HCF336C 3" Distributor Assy	1
7A	HCXFW2BHG307A	3" Bulkhead Gasket (2 Pack)	2
8	HCXFW2BHK308	3" Bulkhead Kit	2
9	HCXFW2UNAD309	3" Union Half Adapter	2
9A	HCXFW2UNAOR309A	3" Union O-Ring (2-Pack)	2
10	HCXFW2COL310	HCF336C 3" Collector Assy	1
11	HCXFWLATKIT311	HCF336C Lateral Kit	1
12	HCXFWDPA012	1.5" Drain Port Assy	1
12A	HCXFWDPOR012A	Media Drain Cap O-Ring	1
12B	HCXFWDPOR012B	Water Drain Plug O-Ring	1
13	HCXFWDPCKIT013	Water Drain Plug & O-Ring Kit	1
14	HCXFWDPCKIT014	Media Drain Cap & O-Ring Kit	1

Warranty

Hayward® Limited Warranty

To buyer, as original purchaser of this equipment, Hayward Pool Products, 400 Connell Drive, Suite 6100, Berkeley Heights, NJ 07922 warrants its products free from defects in materials and workmanship for a period of FIVE (5) years from the date of purchase.

Parts which fail or become defective during the warranty period, except as a result of freezing, negligence, improper installation, use, or care, shall be repaired or replaced, at our option, without charge, within 90 days of the receipt of defective product, barring unforeseen delays.

To obtain warranty replacements or repair, defective components or parts should be returned, transportation paid, to the place of purchase, or to the nearest authorized Hayward service center. For further Hayward dealer or service center information, contact Hayward customer service department, or visit our website at www.hayward-commercialpool.com for an authorized service center near you. No returns may be made directly to the factory without the express written authorization of Hayward Pool Products.

Hayward shall not be responsible for cartage, removal and/ or reinstallation labor or any other such costs incurred in obtaining warranty replacements.

Some states do not allow a limitation on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Hayward Pool Products, 400 Connell Drive, Suite 6100, Berkeley Heights, NJ 07922
*Supersedes all previous publications

FOR FURTHER INFORMATION OR CONSUMER
TECHNICAL SUPPORT, VISIT OUR WEBSITE AT
www.hayward.com

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