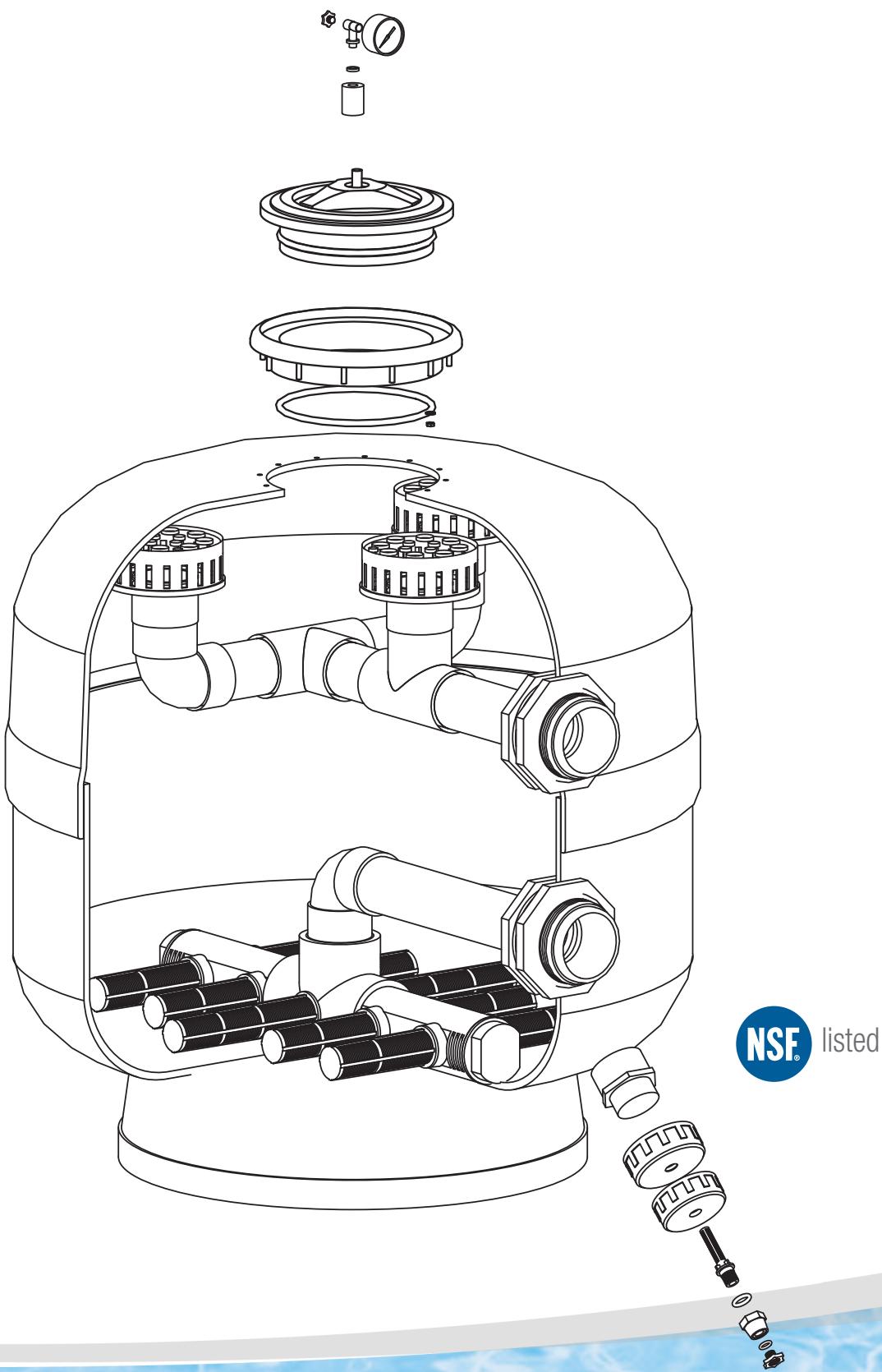




COMMERCIAL SAND FILTER MANUAL

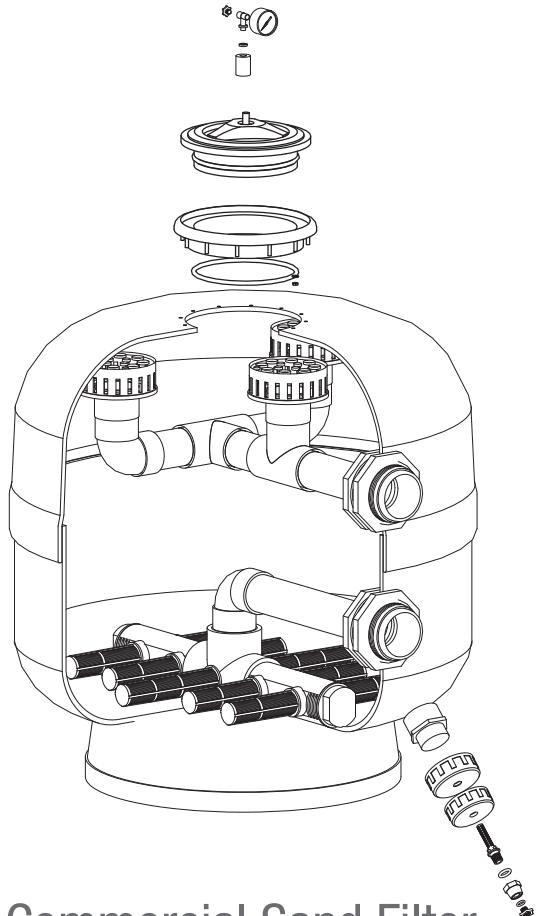


NSF listed

Models: HCF302 / HCF362 / HCF363

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Commercial Sand Filter
Models: HCF302 / HCF362 / HCF363

1. 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 hazards 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 a qualified professional.

⚠ CAUTION – All electrical wiring MUST be in conformance with all applicable local codes, regulations, and the National Electric 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 a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a 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') [0.91 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 12.
- Never use pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, 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.



⚠ 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 result in violent separation of the pump housing and cover due to pressure in the system, which 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 property 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 valve 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 lid is in locked 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.

2. General

⚠ NOTICE – Each country (possibly each state) will have its own standards for public and private pools. 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.

2.1 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 improving the clarity of 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.

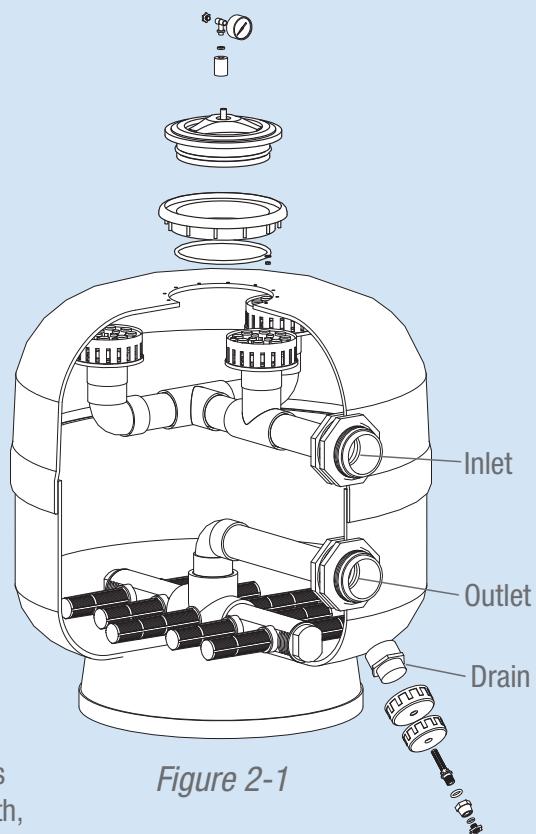


Figure 2-1

2.2 Hayward® Filters

Manufactured from polyester resin and fiberglass, they are virtually corrosion-proof. The internal fittings (diffuser and lateral system) are manufactured from PVC and polypropylene. They are unaffected by salt water and are manufactured for a working pressure up to 50 PSI and a maximum working temperature of 122° F.

2.3 Selection of Filters and Installation

2.3.1 Filter Characteristics

The maximum turnover time for a public pool should not exceed 6 hours. The times will vary from state to state and all local and state codes must be satisfied when using any filtration system.

Choose the filter or filters that meet this requirement. 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 a 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. Whenever 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 state or country may have different maximums for velocity in the plumbing. The recommendations of APSP-7 should be followed.

2.3.2 Installation Characteristics

To insure 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. Normally, 34 ft. of water (34 ft. of head) is sufficient but will depend upon each removed individual system.

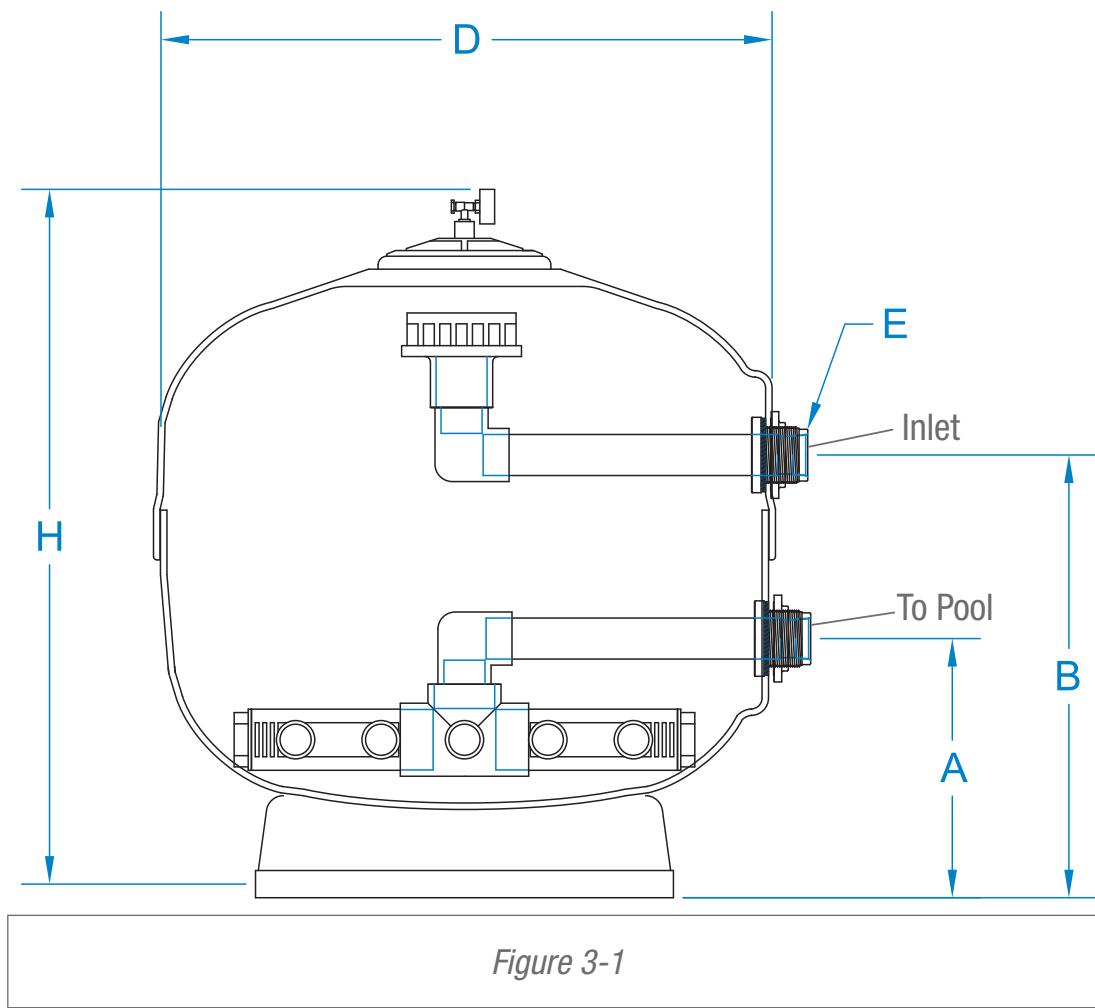
It is also recommended that the discharge from each pump is brought together in a single manifold to the filters. This will allow for greater flow rates for the backwash cycle.

- Install a check valve ahead of filter inlet to prevent contaminants from draining back into 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.
- Provide a minimum of 18" vertical and horizontal clearance.

3. Characteristics and Dimensions

3.1 Dimensions and Sand Requirements

Use only High Rate Sand No. 20 Silica Sand (.45mm - .55mm)



Model #	Dimensions					Filter Area	Max Flow Rate	Characteristics
	A	B	D	E	H			
HCF302	13"	22"	30"	2"	37"	4.75 sq.ft. (.44 sq.m)	95 gpm (360 lpm)	650 lbs
HCF362	15"	26"	36"	2"	41"	6.77 sq.ft. (.63 sq.m)	135 gpm (510 lpm)	850 lbs
HCF363	13"	22"	36"	3"	41"	6.77 sq.ft. (.63 sq.m)	135 gpm (510 lpm)	850 lbs

4. Installation



⚠️ WARNING – Read and follow all instructions.

4.1 General Installation Notes



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

Note: Filters are supplied in a box or on a pallet with accessories included. Due to their weight and size it is recommended that mechanical means be employed to move the filters 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. Polyester 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 filters 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 on page 6.

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 an alternate system to remove water from the mechanical room, per federal, state and local codes.

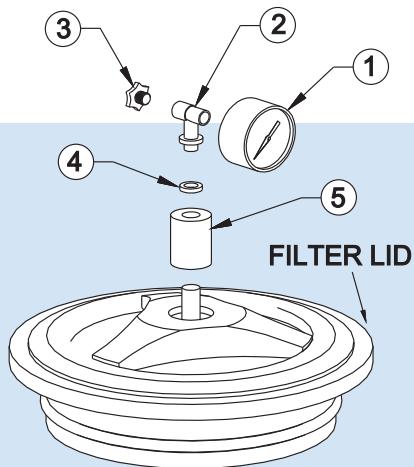
4.2 Filter Installation

Move the filter(s) into place using whatever means available. 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 of the internal components have loosened. It is now necessary to remove the filter lid 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. Also, while in the filter, using a flashlight, check for any cracks or breaks in the body of the filter or the PVC internals that might have occurred during transportation.



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



4.3 Installation of the Pressure Gauge

The pressure gauge assembly will come in a package separate from the box with the filter. Remove all the parts from the bag and apply Teflon tape to all threaded connections. Thread pressure gauge (1) into gauge tee (2). Screw tee plug (3) into other side of gauge tee (2). Slip rubber washer (4) over male end of gauge tee (2) and thread into stem nut (5). Apply Teflon tape to the stem of the filter lid and screw the completed gauge assembly to the stem.

Once the system is started, unscrew the tee plug in order to bleed any air that might have been trapped in the filter during startup.

1 – Pressure Gauge
4 – Rubber Washer

2 – Gauge Tee
5 – Gauge Stem Nut

3 – Tee Plug/Air Bleed

4.4 Removing the Filter Lid

⚠ WARNING



This product should be installed and serviced only by a qualified pool professional.*
Your filter comes with a filter lid pre-installed from the factory.

For qualified pool professionals only: If filter lid needs to be serviced, follow these instructions carefully.

1. Turn off all system circulation pumps and all electric power on the equipment pad.
2. Set all system valves in a position to prevent water from flowing to the filter.
3. The manual air bleed valve (tee plug) must be placed in the OPEN position.
4. Wait until all water leakage has stopped.
5. Rotate the center portion of the filter lid counterclockwise to release seal.
6. Grasp the filter lid body at the flats, turn the filter lid counterclockwise until the indicator on the on the filter lid flange is aligned with the “OPEN” position on the neck assembly.
7. Pull straight up to remove the filter lid, a slight rocking motion may help.

⚠ This product should be installed and serviced only by a qualified pool professional.*

4.5 Re-Installation of the Filter Lid

1. Check the seals, replace as needed.
2. With a clean cloth, wipe upper filter body. Remove all dirt and debris.
3. Align the notch in the filter lid flange with notch on top of the neck assembly.
4. Press the filter lid straight down into the neck assembly.
5. Turn the filter lid clockwise until the indicator is aligned with the “CLOSED” position on the neck assembly.
6. Rotate the center portion of filter lid clockwise to energize seal.
7. Verify the air bleed discharge points away from all electrical connections.

4.6 Testing of 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 possible that during transportation, the filter was damaged. It can be difficult to see some types of damage that may have occurred. It is important to test the system without sand first, to check for leaks. Open the gauge tee. Fill the system with water. When water stream, not water and air, is discharged from gauge tee, close gauge tee. 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 the 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 plumbing for the system. Do not drain the water from the filter after the testing sequence.

4.7 Installation of the Sand **WARNING**

After the testing has been finished and the system is 100% operational, add the filtration sand required. Use #20 silica sand (.45 - .55 mm). Open the air bleed valve, remove the lid and gasket from the filter. See section 4.4 (page 9) . The filter should be full of water at this time. If the filter is not full of water, the filter needs to be filled at least to the diffusers before adding the sand. The proper amount of sand for each filter is listed in

Fig. 3-1. If a diffuser head is directly underneath the lid, cover it with plastic and tape to prevent sand from entering the plumbing.

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

Now, replace the lid and gasket on top of the filter. See section 4.4 (page 9). Be sure that the cover is free of debris. If the lid is not free of sand, the gasket will not seat properly and could cause the filter to leak at the lid. Put the filter into backwash mode, turn pump on, (see next section) and run for about 5 to 6 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.



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

5. Normal Operation

5.1 Filtration

Note: There are many different styles of manifolds and multiport valves available for the Hayward line of filters.

Note: *Tank must be full of water prior to start of Filtration Mode.*

With the pump off, arrange the valve(s) for filtration. This is the normal pressure when the filter is clean. Make a note of the start up pressure. As the filter sand cleans the water, it traps particles of debris from the water inside the filter. These particles will make it more difficult for water to pass through resulting in less water flow and a higher filter pressure. When this pressure rises 8 to 12 PSI above the starting pressure, it is time to backwash the system.

5.2 Backwash

In filter beds, there are thousands of channels for water to pass through, trapping particulate matter. As time passes these channels become blocked and it becomes necessary to clean the filter bed to restore the filter to its optimum working condition by discharging the trapped particles to the drain. The water flow should never exceed 20 GPM per sq. ft. of surface area to prevent discharging sand to the drain and possibly damaging the filter.

To carry out a backwash, stop the pump, set the valves into the backwash configuration and restart the pump. The backwash cycle should be run for 3 to 5 minutes (see page 10). Once backwash is complete, turn off pump and position valve to retain water inside filter tank. Reposition valves to filter mode and start pump immediately.

5.3 Isolate/Close

As the name implies, all valves of the filter system are closed. This position is used for filter maintenance, cleaning and general shut down of the facility.

⚠ NOTICE – It is very important to turn off the filter pumps prior to changing valve positions.

6. Changing of the Sand

The procedure for changing the filter sand is as follows:

1. Turn off pumps. Open air bleed value.
2. Remove lid and gasket from filter. See section 4.4 (page 9) **WARNING**
3. Open the drain port to drain the water from the filter.
4. Using a shop vacuum or a small bucket remove the sand.
5. Using a hose from above, spray the sand to loosen if necessary.
6. Clean the remaining sand from the walls as best as possible with the hose and vacuum.
7. Add the new sand as required in Figure 3-1 of this manual.
8. Replace lid and gasket. See section 4.5 (page 9).



7. Winterizing

Where freezing can occur, be certain to drain the filter before the opportunity to freeze can occur.

! Freezing of the water in a full filter will result in permanent damage to the fiberglass shell.

8. Graph of Filter Head Loss

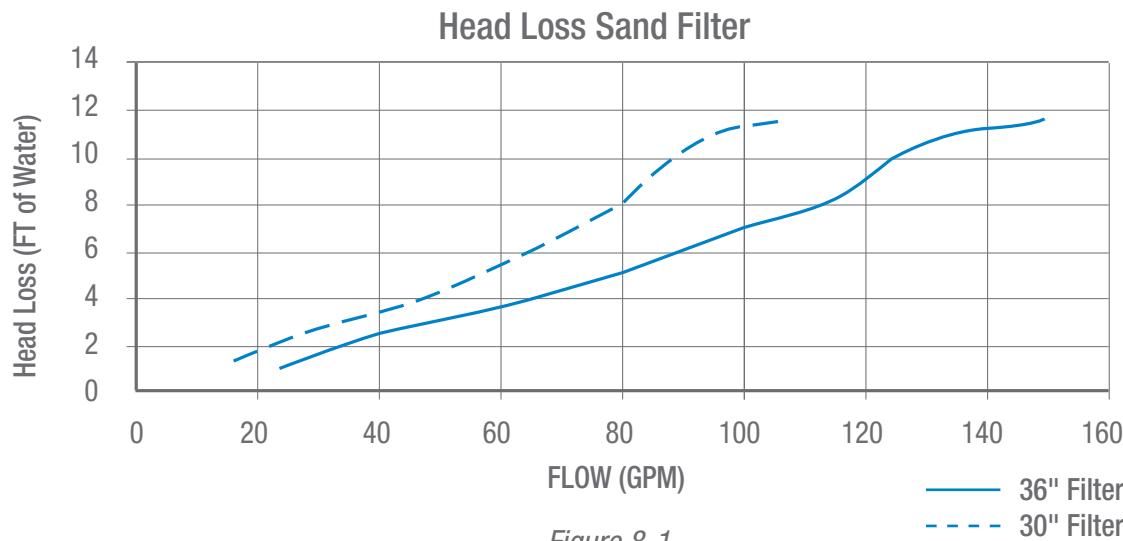
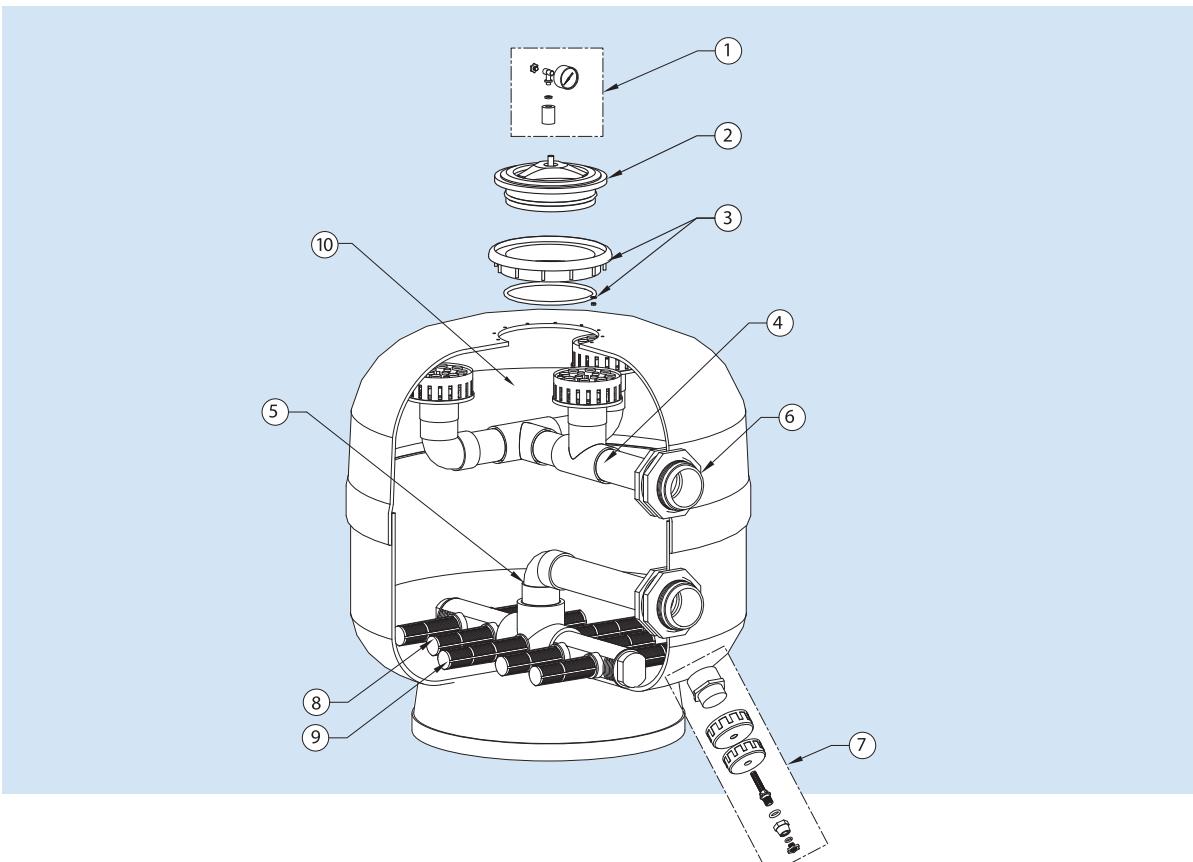


Figure 8-1

Acceptable Pipe Size For Maximum Recommended System Flow Rate Per APSP-7 (6 ft/sec in the Branch line).			
Pipe Size	Flow Rate GPM	Pipe Size	Flow Rate GPM
2" (63 mm)	63 (150 lpm)	4" (100 mm)	238 (900 lpm)
3" (90 mm)	138 (522 lpm)	6" (90 mm)	540 (2040 lpm)

Figure 8-2

9. Replacement Part Drawing and Numbers



Model HCF302 30" Filter with 2" Connections			Model HCF362 36" Filter with 2" Connections			Model HCF363 36" Filter with 3" Connections		
#	Description	Hayward Part #	#	Description	Hayward Part #	#	Description	Hayward Part #
1	Gauge Assembly	HCXF2780001	1	Gauge Assembly	HCXF2780001	1	Gauge Assembly	HCXF2780001
2	Filter Lid	HCXF2780002	2	Filter Lid	HCXF2780002	2	Filter Lid	HCXF2780002
3	Neck Assembly w/ Hardware	HCXF2780003	3	Neck Assembly w/ Hardware	HCXF2780003	3	Neck Assembly w/ Hardware	HCXF2780003
4	Diffuser Assembly	HCXF2780243	4	Diffuser Assembly	HCXF2785743	4	Diffuser Assembly	HCXF1645143
5	Lateral Manifold	HCXF2780244	5	Lateral Manifold	HCXF2785744	5	Lateral Manifold	HCXF1645144
6	Bulkhead Fitting	BFA1020CES	6	Bulkhead Fitting	BFA1020CES	6	Bulkhead Fitting	BFA1030CES
7	Drain Assembly	HCXF2780004	7	Drain Assembly	HCXF2780004	7	Drain Assembly	HCXF2780004
8	Lateral Kit	HCXF27802LAT	8	Lateral Kit	HCXF27857LAT	8	Lateral Kit	HCXF16451LAT
9	Lateral Kit	NA	9	Lateral Kit	HCXF30777	9	Lateral Kit	HCXF30777
10	Internal Air-Relief (not shown)	HCXF27800010	10	Internal Air-Relief (not shown)	HCXF27800010	10	Internal Air-Relief (not shown)	HCXF27800010



10. Warranty

Hayward® Limited Warranty

To Buyer, as original purchaser of this equipment, Hayward Pool Products, 620 Division Street, Elizabeth, New Jersey, warrants its products free from defects in materials and workmanship for a period of **ONE (1)** year 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.

To original purchasers of this equipment, Hayward Pool Products warrants its products to be free from defects in materials and workmanship for a period of **ONE (1)** year from the date of purchase.

Filters which 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.

All other conditions and terms of the standard warranty apply.

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

The Hayward Pool Products warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply.

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, 620 Division Street, Elizabeth, NJ 07207

* Supersedes all previous publications.

11. Product Registration

DATE OF INSTALLATION _____	
INITIAL PRESSURE GAUGE READING (CLEAN FILTER) _____	
PUMP MODEL _____	HORSEPOWER _____

* Retain this Warranty Certificate in a safe and convenient location for your records.

12. Warranty Card Registration

DETACH HERE: Fill out bottom portion completely and mail within 10 days of purchase/installation or register online.

Mail to: Hayward Pool Products, 620 Division Street, Elizabeth, NJ 07207; **Attn:** Warranty Dept
Or, register your warranty online at <http://www.haywardnet.com>

Please Print Clearly:

COMMERCIAL SAND FILTER

First Name _____ Last Name _____
 Street Address _____
 City _____ State _____ Zip _____
 Phone Number _____ Purchase Date _____
 E-Mail Address _____
 Serial Number (10-17 digit number) _____
 Model Number _____
 Pool Capacity _____ (U.S. Gallons)

Please include me on all e-mail communications regarding Hayward® equipment or promotions.

WARRANTY CARD REGISTRATION

Years Pool has been in service: <1 year 1-3 4-5 6-10 11-15 >15
 Purchased from _____
 Builder Retailer Pool Service Internet/Catalog
 Company Name _____
 Address _____
 City _____ State _____ Zip _____
 Phone _____
 Type of Pool: Concrete/Gunite Vinyl Fiberglass Other
 New Installation Replacement
 Installation for: In-Ground Above-Ground Spa

COMMERCIAL SAND FILTER MANUAL

Hayward Commercial is ready to jump in:
1-800-657-2287

*Our toll-free line will put you in direct contact with an experienced
technical commercial products specialist.*

We're here to serve you.



HAYWARD®

Hayward Commercial
10101 Molecular Dr. | Suite 200 | Rockville, MD 20850
Visit us at: www.Hayward-CommercialPool.com

Total System: Pumps | Filters | Cleaners | Sanitization | Automation | Lighting | Safety | Parts & Accessories



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