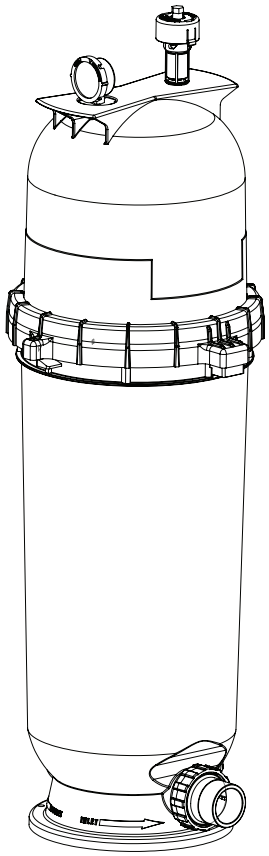
PENTAIR

AQUATIC ECO-SYSTEMS™

SEDNA™ 1000

FIBERGLASS REINFORCED AQUACULTURE CARTRIDGE FILTER



INSTALLATION AND USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

CUSTOMER SERVICE / TECHNICAL SUPPORT

If you have questions about ordering Pentair Aquatic Eco-Systems, Inc. replacement parts and products, please use the following contact information:

Customer Service
8 AM to 7 PM — Eastern and Pacific Times

US

Phone: (877) 347-4788

FAX: (407) 886-6787

International

Phone: (407) 886-3939

FAX: (407) 886-4884

Web site

Visit www.pentairaes.com

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GENERAL INSTALLATION INFORMATION

The following information should be read carefully since it outlines the proper manner of care and operation for your filter system.

You can expect maximum efficiency and life from your filtration system by following these instructions and taking the necessary preventative care.

- Have a trained service professional perform all pressure tests.
- When connecting this system to a high pressure or city water supply, a pressure regulator must be installed so a maximum of 50 psi is delivered to the filter.
- Trapped air in the system can create a hazardous condition. BE SURE to purge all air from the system before operating or testing equipment.
- DO NOT pressure test with compressed air!
- Piping must conform to local/state plumbing and sanitary codes.
- Support piping independently to prevent strains on filter or valve.
- Fittings restrict flow; for best efficiency, use the fewest possible fittings.
- A check valve installed ahead of the filter inlet will prevent contaminants from draining back into the system.
- A check valve installed between the filter and heater will prevent hot water from backing up into the filter and deforming the internal components.
- All wiring, grounding and bonding of associated equipment must meet current local and/or National Electrical Code (NEC) standards.

P/N 170083 Rev. A 4/8/13

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

Important Notice:

This guide provides installation and operation instructions for the Sedna™ 1000 Fiberglass Reinforced Aquaculture Cartridge Filter. Consult Pentair with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the filter.

Attention User: This manual contains important information that will help you in operating and maintaining this filter. Please retain it for future reference. This pump is for use for aquaculture installations ONLY. Do not use with any type of swimming pool, hot tub, or spa.

⚠WARNING Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (877) 347-4788 (US) and (407) 886-3939 (INT.) for additional free copies of these instructions.

Consumer Information and Safety

The filter is designed and manufactured to provide many years of safe and reliable service when installed, operated and maintained according to the information in this manual and the installation codes referred to in later sections. Throughout the manual, safety warnings and cautions are identified by the "⚠" symbol. Be sure to read and comply with all of the warnings and cautions.

⚠WARNING Do not operate the filter until you have read and understand clearly all the operating instructions and warning messages for all equipment that is a part of the circulating system. The following instructions are intended as a guide for initially operating the filter in a general installation, however each installation may have unique conditions where the starting procedure could be different. Failure to follow all operating instructions and warning messages can result in severe injury, death, or property damage.

⚠WARNING This filter is for use for aquaculture installations ONLY. Do not use with any type of swimming pools, hot tubs, or spas.

⚠WARNING Do not permit children to use this product.

⚠WARNING **FILTER OPERATES UNDER HIGH PRESSURE.** When any part of the circulating system, (e.g., locking ring, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate which can result in severe injury, death, or property damage.

To avoid this potential hazard, follow these instructions:

1. Before repositioning valve(s) and before beginning the assembly, disassembly, or adjustment of the locking ring or any other service of the circulating system: (A) Turn the pump OFF and shut OFF any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the manual air relief valve; (C) stand clear of the filter; (D) wait until all pressure is relieved.
2. Whenever installing the filter locking ring FOLLOW THE FILTER LOCKING RING INSTALLATION INSTRUCTIONS EXACTLY.
3. Once service on the circulating system is complete FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.
4. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., locking ring, pressure gauge, valve(s), o-rings, etc).
5. Be sure that the filter is properly mounted and positioned according to instructions provided.

⚠WARNING Due to the potential risk that can be involved it is recommended that the pressure test be kept to the minimum time required by the local code. Do not allow people to work around the system when the circulation system is under pressure test.

Post appropriate warning signs and establish a barrier around the pressurized equipment. If the equipment is located in an equipment room, lock the door and post a warning sign. Never attempt to adjust any closures or lids or attempt to remove or tighten bolts when the system is pressurized. These actions can result in a separation or failure of system components. This instantaneous release of energy can cause components to be accelerated to high velocities and to travel far distances. These components could cause severe personal injury or death if they were to strike a person.

For Installation of Electrical Controls at Equipment Pad (ON/OFF Switches, Timers and Automation Load Center)

⚠CAUTION Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.

⚠DANGER **HAZARDOUS PRESSURE: STAND CLEAR OF PUMP AND FILTER DURING START UP**

Circulation systems operate under high pressure. When any part of the circulating system (i.e. locking ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the pump housing cover, filter lid and valves to violently separate which can result in severe personal injury or death. Filter tank lid and strainer cover must be properly secured to prevent violent separation. Stand clear of all circulation system equipment when turning on or starting up pump. Before servicing equipment, make note of the filter pressure. Be sure that all controls are set to ensure the system cannot inadvertently start during service. Turn off all power to the pump. **IMPORTANT: Place filter manual air relief valve in the open position and wait for all pressure in the system to be relieved.**

Before starting the system, fully open the manual air relief valve and place all system valves in the "open" position to allow water to flow freely from the body of water back to the body of water. Stand clear of all aquaculture equipment to start the pump. **IMPORTANT: Do not close filter manual air relief valve until all pressure has been discharged from the valve and a steady stream of water appears.** Observe filter pressure gauge and be sure it is not higher than the pre-service condition.

⚠WARNING **RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.**

This filter must be installed by a qualified service person in accordance with the current National Electrical Code and all applicable local codes and ordinances. Always disconnect power to the equipment at the circuit breaker before servicing any of the equipment. Be sure that the disconnected circuit is locked out or properly tagged so that it cannot be switched on while you are working on the equipment. Failure to do so could result in serious injury or death to serviceman, users or others due to electric shock. Position the filter and the air relief valve to safely direct water drainage and purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard that can cause severe personal injury as well as damage property.

Pentair Water Pool and Spa®
IMPORTANT SAFETY INSTRUCTIONS
For Installation of Electrical Controls at Equipment Pad
(ON/OFF Switches, Timers and Automation Load Center)

⚠ CAUTION

Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.

INSTALLATION

Please refer to page ii for additional installation and safety information.

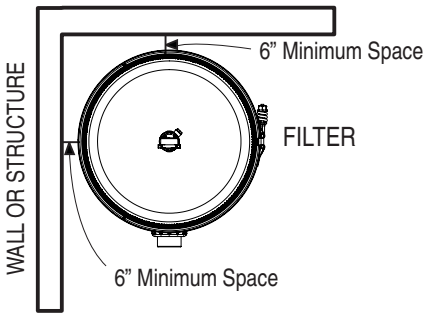
⚠WARNING **THIS FILTER OPERATES UNDER HIGH PRESSURE.**

When any part of the circulating system, (e.g., lock ring, pump, filter, valve(s), etc.), is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate which can result in severe injury, death, or property damage. To avoid this potential hazard, follow these instructions:

1. Before repositioning valve(s) and before beginning the assembly, disassembly, or adjustment of the lock ring or any other service of the circulating system: (A) Turn the pump OFF and shut OFF any automatic controls to ensure the system is NOT inadvertently started during the servicing; (B) open the air relief valve; (C) and stand clear of the filter; D) wait until all pressure is relieved.
2. Whenever installing the filter lock ring FOLLOW THE FILTER LOCK RING INSTALLATION INSTRUCTIONS EXACTLY.
3. Once service on the circulating system is complete FOLLOW SYSTEM RESTART INSTRUCTIONS EXACTLY.
4. Maintain circulation system properly. Replace worn or damaged parts immediately, (e.g., lock ring, pressure gauge, valve(s), o-rings, etc).
5. Be sure that the filter is properly mounted and positioned according to instructions provided.

Installing the Filter

1. Mount the filter on a level concrete slab. Position the filter so that the instructions, warnings and pressure gauge are visible to the operator.
2. Position the filter to be sure piping connections, control valve and drain port are convenient and accessible for servicing and winterizing.
3. Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures.
4. Allow sufficient clearance around the filter in order to see that the lock ring is properly installed.
5. Allow sufficient space above the filter to remove the filter lid for cleaning and servicing. This distance will vary with the model of filter you are using. See the table for the required vertical clearance.



Model	P/N	Size	Vertical Clearance Required
S1000-50	160314	50 sq. ft.	30 in
S1000-75	160315	75 sq. ft.	39 in
S1000-100	160316	100 sq. ft.	61 in
S1000-150	160317	150 sq. ft.	76 in
S1000-200	160318	200 sq. ft.	76 in

6. When installing the HighFlow™ Manual Air Relief Valve use the O-ring only, there is no need for thread sealing compounds. Position the filter to safely direct water drainage. Rotate the valve to safely direct purged air or water.

   Note: Water discharged from an improperly positioned filter or valve can create an electrical hazard as well as damage property.
7. Be sure all plumbing connections are in accordance with local plumbing and building codes.
8. Filter plumbing connections are provided with an O-ring seal. If needed, use only a silicone base lubricant on the O-rings.

   Note: Avoid the use of pipe joint compound, glue or solvent on the bulkhead connections.
9. The base of this filter is provided with two (2) mounting bosses for the purpose of anchoring the filter to the concrete.

Pressure Tests

When performing hydrostatic pressure tests or when testing for external leaks of the completed filtration and plumbing system, ensure that the Maximum Pressure that the filtration system will be subjected to **DOES NOT EXCEED THE MAXIMUM WORKING PRESSURE OF ANY OF THE COMPONENTS CONTAINED WITHIN THE SYSTEM.**

In most cases, the maximum pressure will be stated on each component of the system. If doubt exists as to the pressure to which the system will be subjected, install an ASME approved automatic Pressure Relief or Pressure Regulator in the circulation system for the lowest working pressure of any of the components in the system.

ORIGINAL STARTING PRESSURE IS: _____ psi (pounds per square inch).

REPLACE THE MEDIA AT: _____ psi.

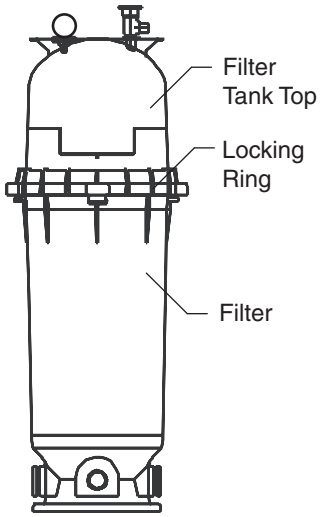
OPERATION

⚠WARNING **THIS SYSTEM OPERATES UNDER HIGH PRESSURE.**

When any part of the circulating system (e.g., Lock Ring, Pump, Filter, Valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate which can result in serious injury, death, or property damage. To avoid this potential hazard, follow these instructions.

Filter Operation Information

1. This filter operates under pressure. When the lock ring is installed properly and operated without air in the water system, this filter will operate in a safe manner.
2. **⚠WARNING** The maximum working pressure of this filter is 50 psi. Never allow pressure in excess of 50 psi, even when conducting hydrostatic pressure tests. Pressures above 50 psi can cause the lid to separate, which can result in severe injury, death or property damage.
3. The pressure gauge is the indicator of how the filter is operating. Maintain your pressure gauge in good working order.
4. Replace the media when the pressure reads between 8-10 psi higher than the original starting pressure or when the media manufacturer recommends replacement of the element. The filter pressure reading can increase over time. The pressure build-up will vary due to the chemistry of incoming water.



Installing the Locking Ring

The maximum working pressure of this filter is 50 psi. Never subject this filter to pressure in excess of this amount, even when conducting hydrostatic pressure tests. Pressures above 50 psi can cause the lid to separate, which can result in severe injury, death or property damage.

⚠WARNING **RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.**

Position the filter and High Flow™ Manual Air Relief Valve to safely direct water drainage and purged air or water. Water discharged from an improperly positioned filter or valve can create an electrical hazard that can cause severe personal injury as well as damage property.

Installing the Locking Ring

These instructions MUST BE FOLLOWED EXACTLY to prevent the lid from separating during system restart or later operation. Perform the following steps before working on any part of the circulating system (e.g., lock ring, pump, filter, valves, etc.).

1. Turn the pump off and shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
2. Open the HighFlow™ Manual Air Relief Valve and stand clear of the filter.
3. Wait until all pressure is relieved. **Never attempt to assemble, disassemble or adjust the filter lock ring while there is any pressure in the filter.**
4. Be certain the O-ring is in position in the lower tank half. Place the filter lid over the lower tank half, making sure it is fully and firmly seated on the tank half.
5. Place lock ring over the tank lid, and centering the lock ring on the threads of the tank body. Turn the lock ring clockwise until the safety latches click and the lock ring hits the stops on the body. DO NOT OVER-TIGHTEN THE LOCK RING AFTER LOCK RING HAS HIT THE STOPS ON THE BODY.

System Start-up Instructions

1. Open the HighFlow manual air relief valve until it snaps into the full open position (this only requires a quarter turn counterclockwise). Opening this valve rapidly releases air trapped in the filter.
2. Stand clear of the filter tank, then start the pump.
3. Close the HighFlow manual air relief valve after a steady stream of water appears.
4. The system is not working properly if either of the following conditions occur.

- A solid stream of water does not appear within 30 seconds, after the pump's inlet basket fills with water.
- The pressure gauge indicates pressure before water outflow appears.

Do not attempt to work on the filter until the filtration system and pump is completely shut down. If either condition exists, **shut off the pump immediately**, open valves in the water return line to relieve pressure, and clean the air relief valve, see page 3 *Cleaning the HighFlow Manual Relief Valve* .

MAINTENANCE

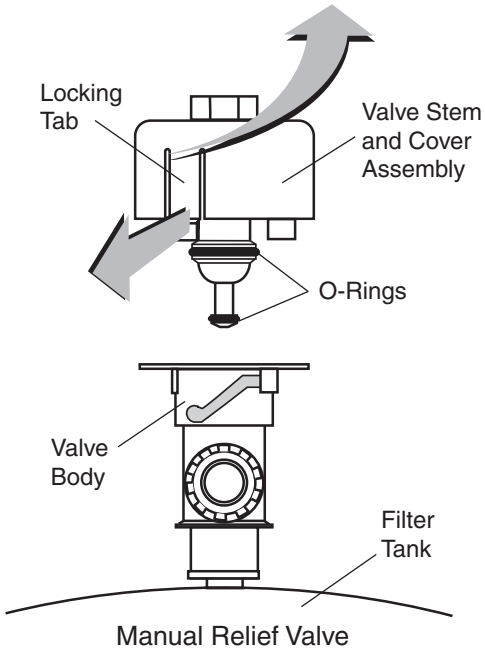
Replacing the Media

1. Turn the pump off, shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
2. Open the filter High Flow manual air relief valve, (and the waste drain valve, or cap, if your system has one).
3. Remove strainer basket lid and clean basket. Replace basket and secure lid.
4. Disconnect air relief drain hose if installed.
5. Remove locking ring by depressing safety latches on both sides of ring and rotate counterclockwise, then remove tank lid.
6. Remove the media assembly.
7. Clean and remove debris from inside the filter tank and from the O-ring and O-ring groove on the tank body. Install new or clean media assembly
8. Remove and replace the media per the media manufacturer's instructions.
9. Place lock ring over tank lid, and centering the lock ring on the threads of the tank body, turn the lock ring clockwise until the safety latches click and the lock ring hits the stops on the body. DO NOT ATTEMPT TO OVER-TIGHTEN THE LOCK RING AFTER LOCK RING HAS HIT THE STOPS ON THE BODY.
10. Replace drain cap and reinstall HighFlow manual air relief valve drain hose if used.

⚠CAUTION Any time the filter tank is opened, and/or element assembly is removed, be sure to generously coat the O-ring with silicone lubricant before reassembling the unit. DO NOT USE PETROLEUM BASED LUBRICANTS BECAUSE THEY HAVE A DETERIORATING EFFECT ON RUBBER.

Cleaning the HighFlow™ Manual Air Relief Valve

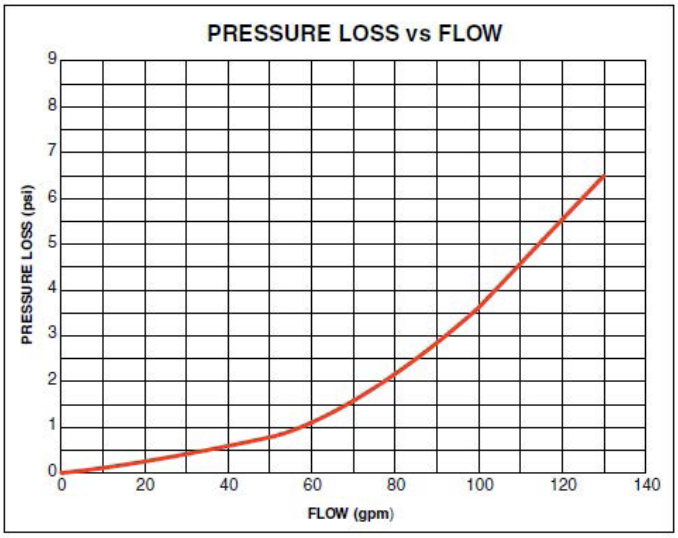
1. Turn the pump off and shut off any automatic controls to ensure that the system is not inadvertently started during servicing.
2. OPEN THE HIGHFLOW MANUAL AIR RELIEF VALVE UNTIL IT SNAPS INTO THE FULL OPEN POSITION, STAND CLEAR OF THE FILTER, THEN WAIT UNTIL ALL PRESSURE IS RELIEVED.
3. With the relief valve attached to the filter tank, pull out the locking tabs and remove the valve stem and cover assembly with a counterclockwise and lifting motion, see image.
4. Clean debris from the valve stem and body. Verify that the filter tank's air passage is open by inserting a 5/16 in. drill bit through the valve body. Verify that the O-ring are in good condition, properly positioned, and lubricated with a silicone base lubricant.
5. Reinstall the valve stem and cover assembly with a downward and clockwise motion until it snaps into position.

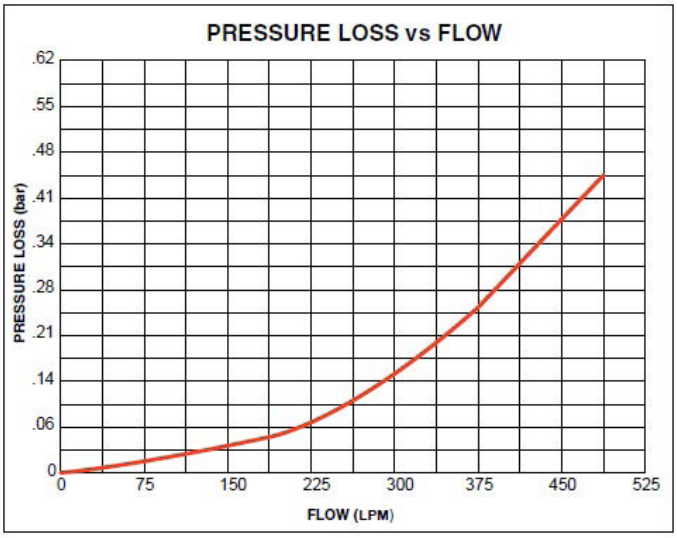


Manual Relief Valve

TECHNICAL DATA

Sedna™ 1000 Filter Pressure Loss Chart





Sedna™ 1000 Sand Filter Flow Rate Table

		Residential Maximum Cartridge Flow Rates			
Product No.	**sq. ft.**	**GPM**	**GPH**	**6 Hour**	**8 Hour**
160460	50	50	3,000	18,000	24,000
160461	75	75	4,500	27,000	36,000
160462	100	100	6,000	36,000	48,000
160463	150	150	9,000	54,000	72,000
160464	200	200	9,000	54,000	72,000

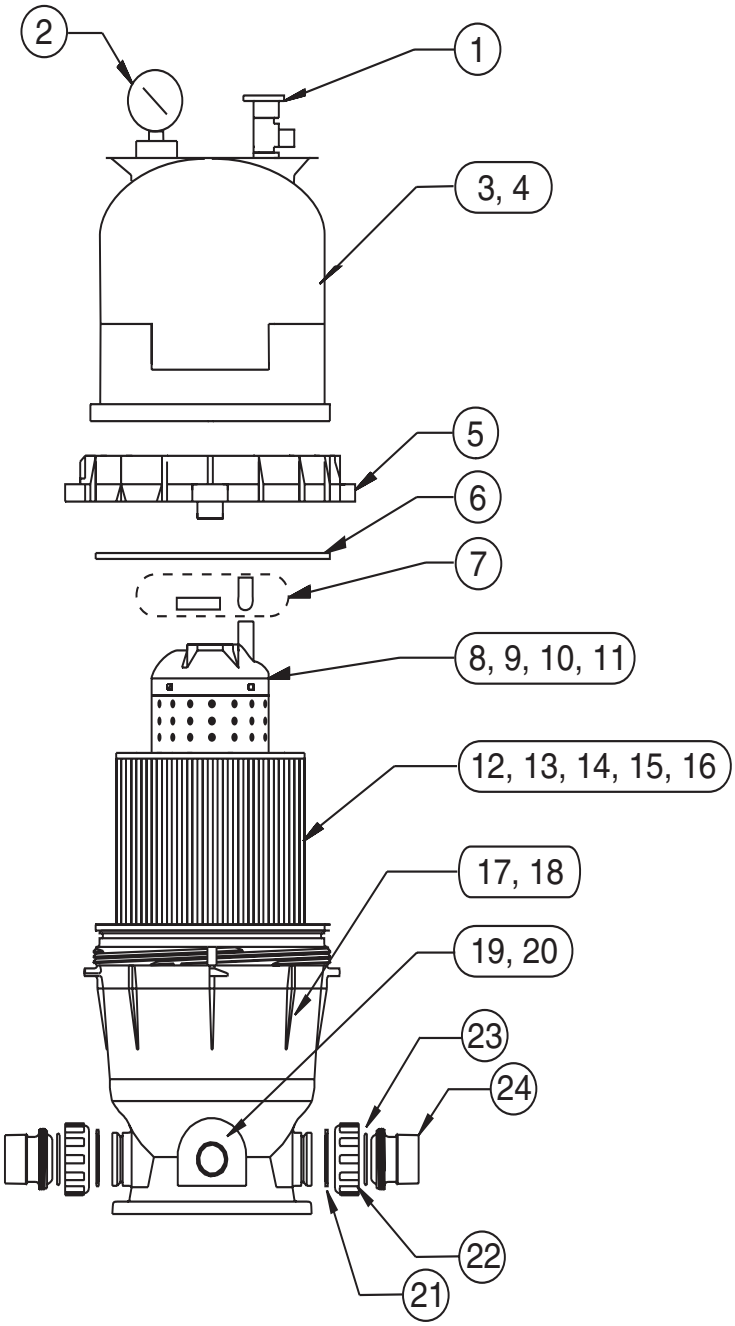
Note: One GPM per sq. ft. shown, recommended flow rate is 5 GPM per sq. ft.

Note: Actual system flow will depend on plumbing size and other system components.

REPLACEMENT PARTS

Sedna™ 1000 Aquaculture Cartridge Filter Illustrated Parts List

Item	Part Number	Description
1	98209800	High Flow™ Manual Air Relief Valve
2	190058	Pressure Gauge
3	170086	Lid, 50, 100 sq. ft. Filter
4	170087	Lid, 75,150, 200 sq. ft. Filter
5	59052900	Locking Ring Assembly
6	87300400	Body O-Ring
7	59016200	Air Bleed Sock Kit
8	59053500	Center Core, 50 sq. ft. filter
9	59053500	Center Core, 75 sq. ft. filter
10	59053500	Center Core, 100 sq. ft. filter
11	59053500	Center Core, 150, 200 sq. ft. filter
12	170090	Cartridge Element, 50 sq. ft. filter
13	170091	Cartridge Element, 75 sq. ft. filter
14	170092	Cartridge Element, 100 sq. ft. filter
15	170093	Cartridge Element, 150 sq. ft. filter
16	170094	Cartridge Element, 200 sq. ft. filter
17	170088	Bottom, 50, 100 sq. ft. filter
18	170089	Bottom, 75, 150 sq. ft. filter
19	86202000	Drain Cap Assembly
20	51005000	Drain Cap Gasket
21	39104500	Union Nut “C” Clip
22	98212200	Union Nut
23	071426	Union O-ring
24	79304600	Body, Swivel



Notes

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