FILTRATION SYSTEM
过滤系统

Owners Manual
用户手册

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⚠WARNING 警告

This equipment must be installed and serviced by a qualified technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.
设备的安装和维修需要有资格的技术员。不妥的安装容易留下电器隐患，事故的发生会造成财产的损失，甚至人员的伤亡等。
不妥的安装方式也将导致保修承诺失效。

Notice to Installer 产品安装人员请注意

This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed **this manual must be given to the owner/ operator of this equipment.**
此手册包含了设备的安装、运行和安全使用的重要信息。
一旦设备被安装使用，该手册就必须给到设备拥有者或操作者的手中。

WATERCO
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Member WATER QUALITY ASSOCIATION

WATERCO
Water, the Liquid of Life

www.waterco.com

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SAFETY INFORMATION

A complete filtration system consists not only a filter but also a “matching” pump and inter-connecting plumbing. There are some general considerations when installing a filter system.

1. For best overall performance locate the system as close as possible to the pool. If the system is to be located above water level it can be raised as high as 0.75 metre (2.5 ft), without affecting the pump efficiency. However a check valve is recommended on the suction line.

2. If the unit is to be installed below water level, valves should be on both the suction and return lines to prevent back flow of pool water during any routine servicing that may be required.

3. The filter should be located on a level concrete slab such that the orientation of the valve outlets are convenient and accessible for the installation and the operation of the unit.

4. Provide reasonable protection from weather.

5. Select a well-drained area, one that will not flood when it rains. Damp, non-ventilated locations should be avoided - motors require free circulation of air to aid in cooling.

6. Electrical connections must be made in total accordance with all local codes and ordinances. Length of wire from the power source should be of sufficient gauge so that the voltage remains within the motor’s specification. Do not use long extension leads.

7. Provide sufficient space around filter and pump for routine maintenance.

8. If fitting a salt chlorinator and/or any other device into the filter circuit great care must be exercised to ensure that the appliance is installed, in strict accordance with the Manufacturer’s instructions and any Standards that may exist. Salt chlorinators must have some form of gas trap and safety device.

9. Provide barrel unions to each item of equipment for future servicing of equipment. All Waterco pumps and filters come with these union type of fittings.

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COMMON INTRODUCTION

TO THE POOL OWNERS

Congratulations on selecting one of Waterco's new range of efficient pool filtration systems.

To familiarise yourself with the operation of the filtration system, please read the following instructions in this manual carefully. This manual is intended as an operating manual rather than installation guide, and is written specifically for you to ensure that you get the best results from your Waterco products.

This manual is written to cover all three (3) basic types of filtration systems manufactured by Waterco, that is Diatomaceous Earth (D.E.), Sand and Cartridge Filters. You can identify your type from the label on the filter tank.

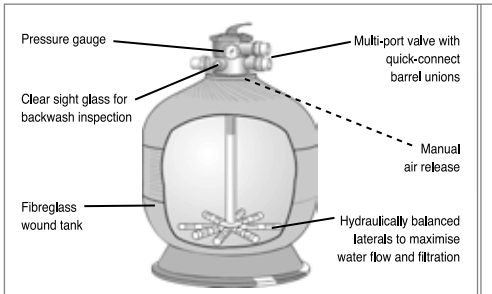
All Waterco Equipment is designed and manufactured to provide many years of trouble-free operation and, as such, we hope you get the maximum pleasure and benefit from your swimming pool.

PLEASE KEEP THIS MANUAL HANDY FOR FUTURE REFERENCE.

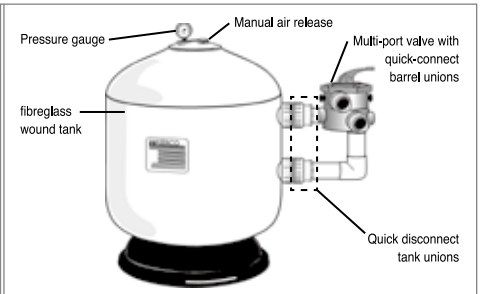
MICRON SAND FILTERS ONLY

Micron Vertical Fibreglass vessels consist of a blow moulded inner shell of fibreglass reinforced polyester resin over wound with fibreglass filament. Waterco fibreglass filters embody the latest in fibreglass winding technology. Waterco's digitally controlled filament winding machine faultlessly winds continuous strands of fibreglass filament to create a filter vessel with refined consistency and superior quality.

The design and the manufacturing process utilising the most up to date filament winding machine, incorporation of non metallic fittings plus reinforcing manhole openings with proprietary methods, is unique to Waterco.



Micron Top Mount Sand Filter



Micron Side Mount Sand Filter

SAND FILTRATION

Incoming water from the piping system is automatically directed by the Multiport Valve to the top of the filter bed. As the water is pumped through the filter sand, dirt and debris are trapped by the filter bed, and filtered out. The filtered water is returned from the bottom of the filter tank, through the Multiport Valve and back through the piping system.

INSTALLATION

1. Position the filter as close to the Swimming Pool/ Spa as possible.
2. Position the filter so that it is free from flooding, away from sumps, guttering, garden hollows, etc.
3. Position the filter so that the piping connections, Multiport Valve and winter drain is convenient and accessible for operation, servicing and winterizing.
4. Ensure that the compliance label is facing the front to allow easy identification in the case of service difficulties.
5. The filter should be placed on a level concrete slab, very firm ground, or equivalent. Ensure that the ground will not subside, preventing any strain from the attached plumbing.
6. Ensure that there is no movement of the filter during operation of the Multiport Valve.

Filling the Filter Media

1. Before filling the filter media into the filter vessel, do a visual check of the laterals. Look for broken or loose laterals. Replace if necessary.

2. To eliminate stress on the laterals, fill the filter vessel with enough water to provide a cushioning effect when the filter sand is poured in.

3. **(a) Top Mount Sand Filters** - Top Mount sand filters are supplied with a perforated plastic locator, which centers the stem and prevents media from entering the stem pipe. Place the perforated plastic locator on the centre stem of the filter and carefully pour in the filter media via the perforated holes of the plastic locator. Remove the plastic locator once completed.

   NOTE: If a template is not provided or is lost you must center the stem and cover the stem opening to prevent non-alignment and media entering the stem pipe.

   (b) Side Mount Sand Filters (SM600) – Remove the top diffuser from the internal diffuser pipe and place the flexible air relief tube to the side, out of the way, inside the filter vessel. Cap the internal diffuser pipe with the sand shield provided to prevent sand from entering it. DO NOT MOVE DIFFUSER PIPE as this can affect the integrity of the bulkhead seal.

   NOTE: The above instructions do not apply to Sidemount Filters larger than SM600 filters. Any filter media entering the diffusers will be removed during normal operation.

4. Wash all the filter media and debris away from the threads of the filter vessel.

5. Lubricate the o-ring or gasket (bolt down type) MPV and thread to the filter.
   Lubricant should be silicon based and not petrochemical based lubes.

6. Thread the Multiport Valve or Top Cap onto the filter tank. Hand tighten only.

Plumbing

1. Check that the incoming water pressure is within the filter's recommended working pressure and ensure that a pressure limiting valve is installed if using mains water or a high pressure pump.

2. Ensure that a foot valve (non return valve) is installed if the pump is installed 500mm above the water level.

3. If the sand filter is installed below the water level or connected to mains water, isolation valves should be installed before the filter and after the valve. This will prevent water flow during any routine maintenance that may be required.

4. Minimise the length of pipe and the number of fittings to minimize friction loss to ensure maximum efficiency.

5. Connect all plumbing to the Multiport Valve taking care that all joints are glued or tightened securely to prevent leaking.

6. To prevent breakage and damage to the pump and Multiport Valve, use only pipe sealants specifically formulated for plastics.

7. Ensure solvents are not excessively applied to fittings as this could run into o'rings and create sealing problems.

8. Do not over tighten fittings or adapters.

Installation of the Multiport Valve

Top Mount Sand Filters are supplied with a screw down Multiport Valve.
Supplied with the Multiport Valve are three threaded barrel unions and 1 roll of Teflon tape.

1. Screw the barrel unions onto the threaded ports on the Multiport Valve.

2. When rotating the Multiport Valve into position on a Top Mount Filter, leave some leeway for better alignment of plumbing.

   NOTE: Do not over tighten the Multiport Valve as this can lead to damage and void any warranty provided.

3. Once the Multiport Valve is in position and the plumbing is aligned apply the thread tape to the barrel union thread.

4. Using the roll of Teflon tape wrap the Teflon tape around the thread (tail) of the barrel union in a clock wise direction.

   NOTE: Do not put too much thread tape on the thread as this can lead to cracking of the Multiport Valve's internal thread.

5. Screw the barrel union into the thread of the Multiport Valve and hand tighten. The barrel union should be firmly threaded into the Multiport Valve and there should be no play between the thread.

6. Once you have done this tighten the barrel union with an appropriate tool until it is tight.

   NOTE: Do not to over tighten.

7. Repeat steps until all barrel unions are firmly onto the Multiport Valve.

8. Glue the plumbing to the Barrel unions and Allow 24 hours for glue (solvent) to set before starting the filter.

9. Test the filter and check for leaks around the threads. If leaking occurs disconnect plumbing and repeat the steps 2 to 6 until the leak has stopped.

INITIAL STARTUP OF FILTER

Be sure correct amount of filter sand media is in tank and that all connections have been made and are secure.

1. Depress Multiport Valve handle and rotate to the BACKWASH position.

   NOTE: To prevent damage to control valve seal, always depress handle before turning.

2. Switch on the Pump/ Open the Inlet Valve allowing the filter tank to fill with water.

   ⚠ CAUTION

   Operation of the Multiport Valve or mode selection is to be always done with the pump switched off.

   NOTE: If a pump is installed, switch the pump on and off, instead of closing and opening the Inlet Valve.

3. Once water flow is steady out the waste line, run the pump for at least 1 minute. The initial backwashing of the filter is recommended to remove any impurities or fine sand particles in the sand media.

4. Turn the pump off, Multiport Valve to the RINSE position. Switch on the Pump/ Open the Inlet Valve until water in sight glass is clear — approximately 10 to 15 seconds .

5. Switch off the Pump/ Close the Inlet Valve, set the Multiport Valve to the FILTER position and Switch on the Pump/ Open the Inlet. Your filter is now operating in the normal filter mode.

6. Adjust pool suction and return valves to achieve desired flow. Check the plumbing and filter for water leaks and tighten connections, bolts, and nuts, as required.

   NOTE: If a pump is installed, switch the pump on and off, instead of closing and opening the Inlet Valve.

7. Record the pressure gauge reading (start up pressure) during initial operation. After a period of time, the accumulated dirt and debris in the filter causes a resistance to flow, and the flow diminishes. The pressure will start to rise and the flow of water will start diminishing. When the pressure gauge reading is 50 kPa (7.2 psi) higher than the initial “Start up” pressure, it is time to backwash (clean) the filter (see Backwashing).

   NOTE: If the filter is connected to mains water, it is not necessary to record the “Start up” pressure, as mains pressure tends to fluctuate.

BACKWASHING

The function of backwashing is to separate the deposited particles from filter media grains and flush them from the filter bed. Backwashing is achieved by reversing the flow of water through the filter bed at a fairly high flow rate. This high flow rate expands the filter bed and the water collects the debris taking it to waste.

Conditions for Backwashing :-
Time for backwashing is determined by the following conditions:

1. The flow rate through the filter bed decreases until it is insufficient to meet the demand.

2. The removal efficiency of the filter bed decreases to the point where the effluent quality deteriorates and is no longer acceptable.

3. When the pressure gauge reading is 50 kPa (7.2 psi) higher than the start up pressure.

4. If the filter is connected to mains water, pressure rise is not an accurate indicator as mains pressure tends to fluctuate. It is best to rely on the actual flow rate.

   NOTE: Waterco recommends that you backwash a swimming pool sand filter in a residential installation at least once a month.

Importance of Backwashing

The importance of backwashing cannot be overstated. Dense filter media can become “packed” without proper and frequent enough backwashing. Debris will remain trapped and create channeling within the filter bed. This will result in the filter bed exhausting early. Moreover, if debris is not flushed from the media grains, the filter bed will become dirtier and dirtier as time goes on until the filter operation fails.

Backwashing Instrustions :-

1. Switch off the Pump/ Close the Inlet Valve.

   NOTE: If a pump is installed, switch the pump on and off, instead of closing and opening the Inlet Valve.

2. Release the filter’s pressure by loosening Pressure Release Valve until the Pressure Gauge needle drops to zero <0>.

3. Retighten Pressure Release Valve.

4. Depress and turn Handle 180° to the BACKWASH position.
   In the BACKWASH position, the water flow is automatically reversed through the filter so that it is directed to the bottom of the filter vessel, up through the sand, flushing the previously trapped dirt and debris out the waste line.

5. Switch on the Pump/ Open the Inlet Valve. Backwash water will flow out through drain pipe.

6. When the backwash water in the sight glass appears clear, Switch off the Pump/ Close the Inlet Valve.

7. Depress and turn the handle to the RINSE position.
   In the RINSE water flow is directed through the filter bed and out of the filter through the backwash outlet. This process settles the filter media bed into place and ensures any dirt or debris is rinsed out of the filter, preventing possible return to the pool.

8. Switch on the Pump/ Open the Inlet Valve. Rinse water will flow out through the drain pipe.

9. When the rinse water in the sight glass appears clear. Switch off the Pump/ Close the Inlet Valve.

10. Depress and turn the handle to the Filter position and Switch on the Pump/ Open the Inlet Valve for normal operation.

MAINTENANCE

The filter media will only require replacement once it has reached the limits of its designated life. Refer to the product information of the particular filter media used.

To ensure the maximum life of the selected filter media, please follow the procedures below:

1. Backwash the filter regularly according to the instructions set under “Backwashing”.

2. Refer to the specifications of the filter media used and implement regeneration procedures accordingly.

3. Maintain a correct chemical balance your pool/spa water. The chemical balance of water is a relationship between its Ph, total alkalinity, calcium hardness and water temperature. The water must be maintained at all times to the following:

PH LEVEL	**:**	**BETWEEN 7.2 & 7.8.**
TOTAL ALKALINITY	**:**	**BETWEEN 80 & 150ppm.**
CALCIUM HARDNESS	**:**	**BETWEEN 150 & 300ppm.**

And within these tolerances be balanced to the Langelier Saturation Index within a range of -0.2 to +0.2.

NOTE: Testing kits are available to test the water yourself or alternately bring a sample of the water to a professional pool and spa shop.

4. Mains water and rural water supplies need to be monitored. Saturation (life) in mains water or bore (rural) will vary depending on water quality.

5. To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly.

6. Replace the pressure gauge if faulty readings are observed.

FULFLO D.E FILTERS ONLY

The Waterco Fulflo D.E. filter has been designed to deliver crystal clear water to your swimming pool.

All D.E. filters are ideal for use in swimming pools and spas where you require a high level of debris and particle removal.

INSTALLATION

Your Waterco D.E. filter is supplied with multiport valve plumbing kit which attaches to the front of the D.E. filter using half unions onto the threaded inlet and outlet ports.

Locat the filter body into the required position. Ensure that it is on **a flat level surface** and is aligned with the pump.

The Multiport valve plumbing kit is to then be attached to the filter tank. The multiport valve inlet and outlet are clearly marked on the ports with raised writing on the moulding.

Ensure that the pipe extending from **the pump outlet** is connected to the multiport valve **port marked inlet**.

Cut and fit the UPVC pipe and fittings onto the Fulflo D.E. filter multiport valve and the pump outlet. REFER to pump installation manual for the correct pump plumbing procedures.

It **is best practice** to fit all the cut pipe and fittings onto the filtration **system before gluing**; this will ensure that the system has been aligned correctly.

Glue the pipe and fittings onto the pump, filter and pool return lines and allow the glue to set for 24 hours before commissioning the system.

⚠ CAUTION

Use only the recommended glue for the connection of pipes and fittings.

It is advisable **to bolt** the filter down using **dyna bolts** to the floor where the filter is located. This will prevent the filtration plumbing from working loose with the expansion and operation cycles of the filter.

On the tank top there are two threaded ports. One is for the air release valve and the other is for the pressure gauge.

Screw the air release valve into the threaded port ensuring that **the o-ring is located** on the air release tube for sealing.

Using **Teflon tape**, wrap once around the brass thread on the pressure gauge in **a clock wise** direction and screw into the threaded lid port.

⚠ CAUTION

Hand tighten the pressure gauge into the required port only.

START UP PROCEDURE

The Waterco Fulflo D.E. filter is a very effective water filter which if maintained correctly will provide you with years of trouble free service.

To start up the filtration system either from new or after cleaning is exactly the same.

1. Ensure that all valve that maybe installed before or after the system are open or in the flow directions which are required.
2. Ensure that the filter is plumbed correctly. Pipe from **pump outlet** must be attached to the filter **inlet port**.
3. Open the air release valve on the top of the filter tank (do not remove).
4. Turn pump on until water comes out through the top of **the air release** valve, then close the air release.
5. Turn off the pump.
6. Mix the required amount of D.E. Powder into a bucket of water. **(Refer table below for amount).** You must mix the powder **thoroughly** into slurry.
7. Turn on the swimming pool pump.
8. **Pour the slurry into the swimming pool skimmer box.**

The slurry will run through the suction line into the pump and then into the filter where it covers the D.E. grids (septum's).

⚠ CAUTION

Ensure that when you pour the slurry into the skimmer box it is through the top lid and not at the weir (flapper door).

Your filter is now fully operational.

At this stage you **must note down** the pressure gauge reading. This reading is your swimming pool **operating pressure**.

NOTE: Operating pressures will vary from swimming pool to swimming depending upon the individual hydraulics.

MODEL NUMBER	QTY Kg	QTY lbs
2027	1.5	3.31
2036	1.75	3.86
2048	2.15	4.73

BACKWASHING

⚠ CAUTION

YOU MUST TURN OFF THE PUMP BEFORE TURNING THE MULTIPORT VALVE INTO DIFFERENT POSITIONS.

1. With the pump switched off, set the multiport valve into the back wash position.
2. Open the air release valve and start the pump up. Close the air release when water is expelled.
3. Looking at the clear sight glass on the multiport valve, run the pump until the water is clear.
4. Turn off pump.
5. Turn the multiport valve into the filter position and prepare the D.E. powder into slurry as in the start up procedure.
6. Follow the start up procedure to re-cover the D.E. Filter grids for normal operation.

PERIODIC CLEANING

The filter grids (septums) should be removed periodically and thoroughly cleaned.

This can be done using a garden hose to remove any stubborn debris, which normal backwashing may not remove.

Alternately you may remove the grids hose them down and immerse them a recommended cleaning compound to further remove any calcium build up.

MAINTENANCE

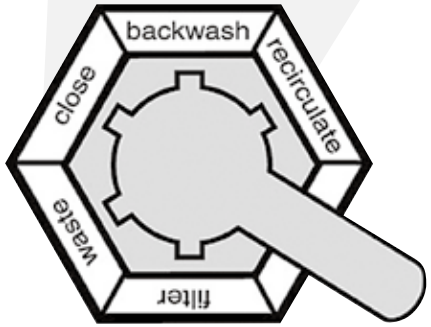
To ensure that you get maximum life from your Waterco Fulflo D.E. filter you will need to maintain the filter regularly.

You will need to re-cover the D.E. filter grids with the D.E. powder every time you back wash the filter.

Back washing is required when the pressure gauge pressure **reads approximately 50kPa** above the start up operatng pressure.

Waterco Fulflo D.E. filters have a maximum operating pressure of 250kPa.

MULTIPORT VALVE OPERATION



1. **Filter - Position for filtering the body of water.**
   Incoming water from the piping system is automatically directed by the Multiport Valve to the top of the filter bed. As the water is pumped through the filter sand, dirt and debris are trapped by the filter bed, and filtered out. The filtered water is returned from the bottom of the filter tank, through the Multiport Valve and back through the piping system.

2. **Backwash - Position for cleaning the filter media.**
   Water flow is reversed by the Multiport Valve through the filter bed so that water flow is directed to the bottom of the tank and up through the filter bed, flushing the previously trapped dirt and debris out the waste line.

3. **Rinse - Position for flushing the filter system.**
   The water flow is directed by the Multiport Valve through the filter bed and out the waste line. This process settles the filter media bed into place and ensures any dirt or debris is rinsed out of the filter, preventing possible return to the Swimming Pool/ Spa.

   NOTE: This position is not available on 4-Way Multiport Valves.

4. **Waste - Position for bypassing the filter bed to Waste.**
   The water flow is directed by the Multiport Valve straight to the backwash outlet, bypassing the entire filter bed. This Multiport Valve position is used lower the water level or for vacuuming water with high dirt loads.

5. **Re-circulate - Position for bypassing the filter bed to the Swimming Pool/ Spa.**
   The Mulitport valve recirculates water flow directly back to the Swimming Pool/ Spa, bypassing the filter.

6. **Closed – Position for closing all flow to the filter.**
   This position is not to be used with the pump operating.

   NOTE: This position is not available on 4-Way Multiport Valves.

⚠ CAUTION

Operation of the Multiport Valve or mode selection is to be always done with the pump switched off.

TRIMLINE CARTRIDGE FILTERS ONLY

The Waterco Trimline Cartridge Filters do not require a media such as sand or D.E powder to operate, instead the filter contains a cartridge element which is easily removed to clean or replace.

All Trimline Cartridge Filters are ideal for use in swimming pool and spas.The Trimline Cartridge Filters is also ideal for use when backwashing is impractical.

INSTALLATION

Remove the cartridge filter from the carton and install the pressure gauge into the threaded port on the filter lid provided. Using Teflon, wrap once around the brass pressure gauge thread in a clockwise direction and screw into the threaded lid port.

⚠ CAUTION

Hand tighten the pressure gauge into the lid only for sealing.

Place the Trimline Cartridge Filter into the required position. Ensure that it is on a flat level surface and is aligned with the pump.

The Trimline Cartridge Filter has marked inlet and outlet ports.

Ensure that the pipe extending from the pump outlet is connected to the Trimline Cartridge Filter marked inlet.

Screw the supplied half barrel unions and tails onto the inlet and outlet before gluing the UPVC piping onto the filter.

⚠ CAUTION

Use only the recommended glue for the connection pipes and fittings.

Cut and fit the pipe and fittings onto the Trimline Cartridge Filter and the pump. **REFER** to Pump Installation Manual for correct pump plumbing procedures.

It is **best practice** to fit all the cut pipe and fittings onto the filtration system **before** gluing; this will ensure that the system has **been aligned** correctly.

Glue the pipe and fittings onto the pump, filter and pool return lines and **allow** the glue to set **for 24 hours** before commissioning the system.

It is **advisable** to bolt the filter down to the floor where the filter is located. This will prevent the filtration plumbing from **working with dyna bolts loose** with the expansion and operation of the filter during regular cycles. It will also help to prevent unecessary stress on the plumbing while unscrewing the filter lid lock ring.

START UP PROCEDURE

The Trimline Cartridge Filter is a simple and effective unit which will provide years of trouble free service if the following maintenance procedures are maintained.

To start up the filtration system either from new or after cleaning is exactly the same.

1. Ensure that all valves installed before or after the filter are open.
2. Ensure that the filter is plumbed correctly. Pipe from pump outlet must be attached to the filter inlet port.
3. Loosen the air bleed screw on top of the filter lid.
4. Prime the swimming pool pump.
   (Refer to the pump installation and operation manual).
5. Turn on the swimming pool pump and allow the pump to run until all the air has been expelled from the filter vessel. Water will run from the air bleed screw.
6. Tighten the air bleed screw.
7. The filter is primed and ready for operation.

In some cases this may be required to be done a few times before the unit will remain primed and be fully operational.

⚠ CAUTION

Do not stand over the lid whilst adjusting the air bleed to purge the system of air.
Injury may occur if air bleed valve comes loose.

MAINTENANCE

To ensure that you get maximum life from your Trimline Cartridge Filter you will need to maintain the filter regularly.

When the filter is first started and has been purged of air, note the pressure on the pressure gauge. This is what is known as the filter operation pressure and it is important that you be aware of this figure.

All filtration systems will operate at different pressures depending on the pool hydraulics.

You will need to clean the filter cartridge (element) once the pressure gauge has reached 50 kPa above the operating pressure.

The Trimline Cartridge Filter has a maximum operating pressure of 350 kPa (for moulded PP housing).

EXAMPLE: Filter operates normally at 60 kPa needs to be cleaned at 110 kPa.

CLEANING

1. Unscrew the filter's lid lock ring and remove the lid off the filter tank. In some cases where pressure has built up you will need to release air from the tank using the air bleed screw before removing the lid.
2. Remove the cartridge element from the filter tank.
3. Using a garden type hose clean the surface of the pleated elements. Make sure to clean between the pleats.
4. Place the cartridge back into the filter tank ensuring that it is seated correctly.
5. Place the lid onto the tank and screw the lock ring down.
6. Ensure to place the lid o-ring on the lid before you start up the filter.
7. Refer to the start up procedure to re commence operation.

⚠ CAUTION

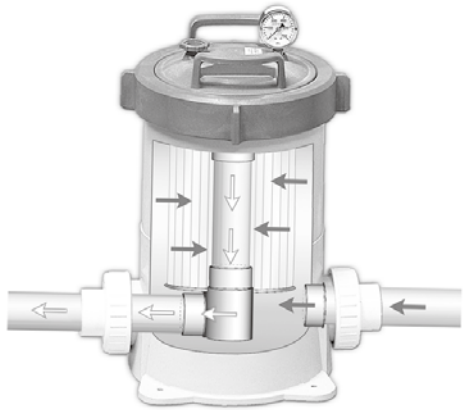
Do not over tighten the lid lock ring.

It is suggested that you should periodically remove the cartridge filter element and soak it over night in a suitable cartridge cleaning compound. This will remove any debris not removed by hosing down of the element.

Some swimming pool stores offer a cartridge cleaning service using the correct solutions otherwise you may wish to use Waterco Cartridge cleaning solution. Directions of use are on the product.

The cleaning time depends upon the swimming pool condition and use. Intervals between cleaning the element should not exceed a period of 12 months in any instance.

FLOW DIAGRAM



GENERAL TROUBLESHOOTING

SYMPTOMS	POSSIBLE PROBLEMS/ SOLUTIONS
Water is not clear	Insufficient disinfectant level.
	Incorrect pool chemistry.
	Heavy bathing and/ or dirt loads.
	Incorrect flow.
	Insufficient running times. (Increase pump run time.)
	Filter is dirty. (Clean per instructions.)
	Hole in filter element.
Low water flow	Check strainer baskets for debris.
	Check for air leaks on suction side.
	Check for restrictions or blockage in either suction or return lines.
	Filter needs to be cleaned or replaced.
	Pool water level too low.
	Pump not primed.
	Pump impeller vanes blocked.
	Strainer baskets not being used and/ or not being cleaned regularly.
	Pump operating under speed (low voltage).
Short filter cycles	Presence of algae, check disinfectant content.
	Check pH and total alkalinity.
	Pump output exceeds design flow rate of filter, check pump performance.
	Ineffective cleaning, check conditions, replace filter cartridge.
High pressure on start-up	Small eyeball fitting in Pool/ Spa.
	Partially closed valve on return line.
	Too large of pump, check selection.
Micron Sand Filters and Fulflo D.E. Filters	
Filter media in the backwash	Excessive quantity of media in the filter.
	Excessive water flow.
	Incorrect sized or grade of filter media.
Filter Media returning to swimming pool/ spa	Filter is on recirculate.
	Verify it is the filter media and not from another source.
	Damage to the under-drain laterals.
	Damage or incorrect fit of Multiport Valve are correct.
	Incorrect or mixed grades of media in the filter.
Trimline Filters Only	
Dirt returns to pool	Hole in filter cartridge, replace filter cartridge.
	Worn o-ring seal inside filter, replace o-ring.

WARRANTY

Please refer to the Waterco “Warranty Terms & Conditions” booklet.

With our on going commitment to quality products and service Waterco Limited reserves the right to alter the product in any manner and at any time without prior warning.

This information is to the best of our knowledge, accurate at the time of printing. Any recommendations or suggestions are made without warranty and without prejudice, since the use of our product is beyond our control.

设备说明

一个完整的过滤系统除了有过滤器外还有与过滤器匹配的循环泵和管道，安装过滤器系统主要需注意以下几点。

1. 为了使系统的性能达到最好，尽量使循环过滤系统的安装位置靠近泳池。如果过滤循环系统安装在泳池水平面以上，则只能安装在水面以上0.75米以内的地方才不会对水泵的使用产生任何影响。且最好在水泵的吸水管上安装一个止回阀。

2. 如果系统安装在泳池水平面高度之下则需要在进出水处都安装上蝶阀， 以防止日常维修时池水倒灌。

3. 过滤器应安放在水平的混凝土平台上，并确保各接口的朝向便于管道的安装和实际的运行。

4. 为防止天气变化，需对设备加以合理的保护。

5. 安装位置尽量选择容易排水的地方，以免雨天被水淹没，尽量选择干燥，通风的地方，有利于发电机的冷却。

6. 所有的电控箱编码需和谐一致，从电源到电机的电线长度需符合电机说明书中的规格。不要使用过长的电线。电气安装必须符合当地的规范和标准。

7. 过滤器和水泵之间的间距要满足日常维护所需的空间。

8. 如果在系统中安装氯发生器或其他设备必须严格按照手册或其他类似的标准去安装，氯发生器要远离气加热装置。

9. 为每台设备提供将来维修使用的配件。Waterco 的所有水泵和过滤器都有与之配套的配件。

目录

一般说明

致所有用户

首先祝贺你选用运水高游泳池过滤器系列的新产品。

为了使你熟悉怎样使用运水高过滤系统，请仔细的阅读手册上的以下说明。该手册专为您过滤系统的安装和操作而编写的，按照以下说明操作能使您获得最好的效果。

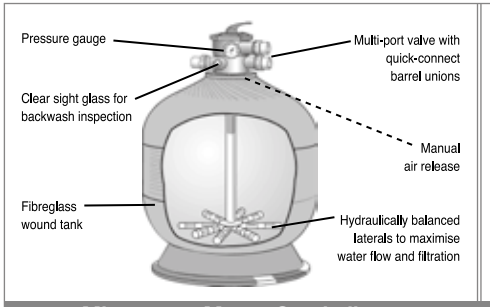
这本手册包含了运水高制造的三种类型过滤设备，他们分别是硅藻土过滤器、Micron 砂缸过滤器和筒形过滤器。你可以通过过滤器上的标签来辨别是那种类型的过滤器。

请保留此手册以便日后参考。

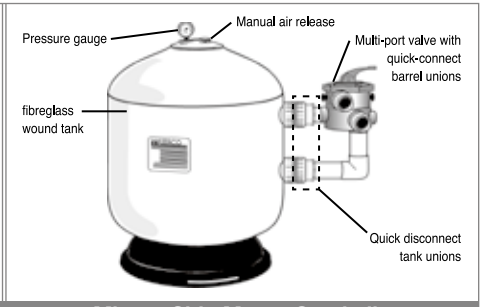
Micron 砂缸过滤器

Micron 砂缸由玻璃纤维缠绕制作成型。Waterco的过滤砂缸的内胆采用玻璃纤维加强的聚酯材料一次成型，外部缠绕采用了最先进的数控缠绕机床，可实现精确的连续均匀的缠绕，使得砂缸结构坚固，经久耐用。

运水高砂缸产品的设计和制造过程的特点在于整合了先进的玻璃纤维缠绕工艺、优良的选材和特别加强的独特的接口和连接方式。



Micron Top Mount Sand Filter



Micron Side Mount Sand Filter

砂过滤

当水从进水管进入后被多向阀引入到砂床顶部，水从砂床流过时，里面的污染物和杂物就被截留在砂床里而被除去。而过滤后的水从缸体的底部汇集，然后从缸体顶部的多向阀回到管路系统。

安装

1. 将过滤器安装位置应尽量靠近游泳池和水疗池。
2. 将过滤器安装在易排水的位置上。
3. 过滤器的安装位置要有利于管道的连接，设备的运行、维修及设备冬季保养。
4. 设备摆放时应该使设备铭牌朝向容易看清的方向，以方便维修时的查看。
5. 为了防止地基的下沉而对管道产生突变的拉力，过滤器应该安装在混泥土地基上。
6. 在改变多向阀的运行方向时要确保过滤器不发生位移。

过滤滤料

1. 在将滤料填入缸体之前，请观察各过滤集水横管是否有脱落或破损，如存在此类问题，请及时更换。

2. 为避免对集水横管的冲击，在填装滤料之前，先将足够的水倒入以淹没集水管到一定位置，以缓冲填料倒入时的冲击。

3. （a）**顶装式过滤砂缸** – 顶装式过滤砂缸配加一个带孔的塑料定位盖，可在填装滤料时用来保证立管的定位居中，并阻止滤料进入到中心立管。填装滤料时，将带孔的定位塑料盖置于中心立管上，从开孔处缓慢注入滤料，填装完成后将塑料定位盖卸下。

   注意：如果该塑料定位盖未能提供或丢失，则操作者必须确保立管居中且将立管上部覆盖，以避免立管不居中造成与多项阀无法对接或立管内有积砂。

   （b）**侧式过滤砂缸** – 填装滤料前，请先将内部上方的配水口卸下，并将柔性的排气管放置于一旁，使之不受填料的影响。将内部的上方的进水管管口予以覆盖，使滤料不至进入。请注意勿将上方的进水管卸下，否则可能影响进水接口处的防水密封。

   说明：以上说明不实用于大于(SM-600)以上的型号。大于(SM600)以上的型号按正常操作就可以将进入到配水口中的滤料冲洗出来。

4. 清洗过滤器，并将砂缸缸口接头处的滤料和杂质清洗干净。

5. 使用硅基润滑油润滑O型圈、多向阀的垫圈和丝口,润滑油不要使用石化润滑油。

6. 将多向阀或砂缸顶盖放在砂缸顶部并徒手旋紧它。

管道

1. 检查进水管的压力是否在砂缸的工作压力范围之内，并确保自来水管道压力高时和使用高压泵时，进水管要安装减压阀。

2. 如果泵安装在泳池水面500mm以上的高度时，须安装一底阀（即止回阀）。

3. 如果砂缸安装在泳池水面以下或者与自来水水管连接，则需在砂缸之前和多向阀阀之后安装截止阀，目的是在日常维修时阻止水流流出。

4. 管道安装本着管件数量最小化和长度最短化的原则，从而减少水头损失以保证设备运转的能效。

5. 将所有的管道连接到多向阀上并用胶水粘合好以免漏水。

6. 为了避免水泵和多向阀的损坏，需使用专用于塑料管道的粘合剂。

7. 不要过多的使用溶剂，过多的溶剂与O型圈接触会造成密封不良。

8. 管道管件连接处不要过分的旋紧。

多向阀安装说明

顶装式高速过滤砂缸的多向阀是螺纹式的。该多向阀配有三个丝接活接头。

1. 将丝接活接头旋到多向阀的接口上。

2. 将多向阀安装在砂缸头上时需有一定的退丝以便于管道安装。
   注意：不要将多向阀拧得太紧以免引起多向阀的损坏，这种情况引起的损坏不在保修范围之内。

3. 多向阀和管件安装就位后，连接丝接活接头时，应在丝口处缠绕生料带。

4. 将生料带顺时针缠绕在多向阀突出的接头丝口上。
   注意：不要用太多的生料带以免引起多向阀内牙的破裂。

5. 将丝接活接头与多向阀连接起来并拧紧，需将活接头螺纹向多向阀旋进直至完全旋紧为止。

6. 可利用适当的工具将活接拧紧。
   注意：不要拧的过紧。

7. 重复操作以上步骤直到所有的活接都拧紧为止。

8. 用胶水将管道与活接连接起来后，要等胶水凉干24小时以后才能启动砂缸。

9. 检查砂缸及其连接的丝口处，看是否有漏水现象发生，如有则重复操作2-6步骤直到没有漏水现象发生为止。

Micron 砂缸的初次启动

确定装入砂缸内的滤料是适量的，并且所有管道连接都已完成并确认安全。

1. 按下多向阀手柄并将其转到”反冲洗”位置。
   注意：为了避免多向阀密封圈的损坏，转动时需要一直按下多向阀的手柄。

2. 打开进水阀/开启水泵向过滤器内供水。

   ⚠ 警告

   操作多向阀和转动多向阀手柄的时候需将水泵关掉。
   说明：如果系统安装有水泵的，则应开关水泵而不要开关进水阀。

3. 当水稳定地从排污管流出的时候，至少运转水泵一分钟。最好进行首次反冲洗将管道中杂质和滤料中的细微颗粒冲洗掉。

4. 关闭水泵后将多向阀转到”漂洗”位置。再次打开泵/进水阀直到视镜内的水变为清澈后大约10到15秒钟为止。

5. 关掉水泵/进水阀，将多向阀转到“过滤”位置，再次打开水泵/进水阀。
   您的砂缸现在即处于正常的过滤工作状态了。

6. 调整泳池和回水管道上的阀门以获取所需的过滤流量。检查管道及砂缸的接头处是否有漏水现象，如有漏水则将接头处重新连接。
   注意：如果系统安装有水泵的，则应开关水泵而不要开关进水阀。

7. 初次使用需记录压力表的初始读数，一段时间以后由于污染物在砂缸中的积累，对水流产生了阻力并使流量减小。此时压力开始上升，流量开始减少。当压力表的读数比初始过滤压力高出50KPa（即7.2psi）时，就要对砂缸进行反冲洗（见下文-反冲洗）。
   注意：如果砂缸与自来水管连接，则启动时记录压力表的读数是没必要的，因为自来水管的压力一般是不稳定的。

反冲洗

反冲洗的功能是把沉积物从滤料颗粒中分离开来，并将之从滤床中冲出。反冲洗水流以很高的速度逆向通过砂床，这个高速的水流可使滤床膨胀并带走了滤床间隙中的杂物。

反冲洗的条件

什么时候开始进行反冲洗的由以下条件所决定。

1. 通过砂床中的流量减少到不能满足过滤需求时。

2. 砂床的过滤效果不断降低至滤后水质不能接受时。

3. 当压力表读数显示的比原始的数据高50 kPa（即7.2psi）时。

4. 当砂缸连接自来水管时，压力上升并不能作为反冲洗开始一个准确指示。因自来水管道的压力常常是不稳定的。此时最好依据实际的过滤流量来判断。

   注意：Waterco 建议家用泳池的砂缸至少一个月反冲洗一次。

反冲洗的重要性

反冲洗的重要性不能被夸大。如果没有正确地、经常性地进行足够的反冲洗，密集的滤料将会出现“板结”。继续停留在砂床的脏物将形成对滤料的穿透。这将使砂床过早的达到饱和。而且如果滤渣不被及时地从砂缸中冲洗掉，砂床将会变的越来越来脏,直至滤料最终失效。

反冲洗说明:

1. 关掉水泵/进水阀
   注意：如果系统安装有水泵的，则应开关水泵而不要开关进水阀。

2. 打开排气阀释放砂缸的内的压力直到压力表读数降到零为止。

3. 拧紧排气阀。

4. 按下多向阀的手柄将其旋转180°转到“反冲洗”位置上。在“反冲洗”位置水流自动逆向地自砂缸底部流过滤床到达缸体顶部，并将脏物带至反冲洗排水管中排出。

5. 打开进水阀/开启水泵。反冲洗出水将从反冲洗排水管中排出。

6. 反冲洗出水在视镜中逐渐变得清澈时,关掉水泵/关闭进水阀。

7. 按下多向阀的手柄并转至“漂洗”位置。漂洗水流通过砂床并从反冲洗出水口流出。这个过程保证了滤床重新就位并将残留脏物从砂缸中漂洗出来，以避免其在过滤时流入池体中。

8. 打开进水阀/水泵。漂洗水将从反冲洗排水管中流出。

9. 当漂洗水流在视镜中变得清澈后，关掉水泵/关掉进水阀。

10. 按下手柄并转至“过滤”位置，打开进水阀/水泵恢复正常过滤状态。

维护

砂缸滤料达到其使用寿命时，即需要更换。滤料的使用寿命可参考厂家说明。为了使滤料的使用寿命达到最长，请按以下步骤操作。

1. 反冲洗操作按照上文“反冲洗”说明的要求来做。

2. 按照厂家的说明书对滤料进行再生操作。

3. 维持池水的化学平衡。水的化学平衡是PH，总碱度，钙硬度和水温之间的一种关系。他们数值应保持在如下范围所示:

   PH　　：7.2-7.8
   总碱度：80-150ppm
   钙硬度：150-350ppm

   这些数值所容许的偏差是保证朗格列尔饱和系数最终在±0.2的范围内波动。

   注意：您可以自己使用测试条进行测试或者取出一定的样品到泳池/按摩池设备的专卖店去测试。

4. 自来水或井水都需要进行监测。自来水和井水中的朗格列尔饱和系数往往是随水质变化的。

5. 为了防止对泵和过滤器的损害及系统的正常运行，需要经常清洗水泵滤网和撇渣器的隔渣篮。

6. 如果压力表读数不准确请更换压力表。

Fulflo 硅藻土过滤器

Waterco Fulflo 硅藻土过滤器是专为使您拥有晶莹透彻的游泳池水而设计的。硅藻土过滤器是为您的泳池/水疗提供高标准的水质的理想设备。

安装

硅藻土过滤器配套有多向阀以及多向阀与外部连接的进出口接头。

将硅藻土过滤器安装在符合要求的水平面上，并与水泵同轴。

多向阀的连接管件均与过滤器本体相连，多向阀的进出水口都在铸塑过程中以凸起的标识予以标明。

安装过程中需确认水泵的出水管与多向阀的进水口相互连接。

选择并切割合适的UPVC管将水泵出水口和多向阀的进水口连接起来。安装过程请依照水泵的安装手册。

在管道粘接之前，最好将准备好的管道和管件试接于过滤系统上，这样可最好的确保管道匹配的正确性。

将所有的管道连接好，在系统试运行之前，让胶水有24小时的凉干时间。

注意：管道及其配件的连接应使用厂家建议的胶水。

将过滤器用螺栓固定在地面上是一个明智的选择。这将防止过滤器在运行的时候因水压的冲力引起的移动。

在缸体的顶部有两个小的丝接接口。一个用以连接排气阀而另一个则是用来连接压力表的。

将排气阀旋入丝接接口并确认密封圈已经套在排气管上以确保密封。
以顺时针方向用生料带将压力表的丝接口缠绕一周后，将压力表旋入丝接接口。

提醒：应徒手将压力表拧紧在对应的接口上。

启动程序

Waterco Fulflo 硅藻土过滤器是一种非常有效的过滤器，如正确维护，可为你提供多年安全而有效的服务。

不管是初次启动还是反冲洗后启动，其程序皆按以下所述:

1. 确保循环系统中所有需要打开的阀门处于打开状态。
2. 保证过滤器管道连接正确。水泵的出水口一定要接到过滤器的进水口上。
3. 松开过滤器顶上的排气阀（不要取下）。
4. 打开水泵直到水从过滤器上的排气阀冒出，然后旋紧排气阀。
5. 关闭水泵。
6. 将所需的硅藻土和水一起在水桶中混合（根据下表中给出的参数）。必须将其混合均匀成泥浆状。
7. 打开泳池水泵。
8. 将泥浆倒入游泳池的撇渣内的撇渣篮中。

硅藻土泥浆将通过回水管及水泵进入到过滤器中，并覆盖在过滤器内的格栅上。

⚠ 警告

确保泥浆是从撇渣器的顶部进入而不能通过撇渣器的溢流堰进入。

现在你的过滤器可以正常运行了。
这时你需要记下压力表的读数，这个数值是你的游泳池初始运行的压力数值。

注意：不同游泳池的运行压力随泳池的水力条件的不同而不同。

编号	硅藻土用量 **(Kg)**	水用量 **(lbs)**
2027	1.5	3.31
2036	1.75	3.86
2048	2.15	4.73

反冲洗

⚠ 警告

你在转动多向阀到不同位置上前必须先关掉水泵。

1. 关掉水泵把多向阀转到”反冲洗”的位置。
2. 打开排气阀并启动水泵。当看见有水从排气阀冒出的时候将排气阀旋紧。
3. 运行水泵，直到从多向阀流出来的水流在视镜中变得清澈。
4. 关掉水泵。
5. 将多向阀旋转到”过滤”位置上，按启动程序里的要求将硅藻土混均成泥浆。
6. 按照启动程序中的要求补加因反冲洗而损失的硅藻土量，并进入正常的过滤运行状态。

定期清洗

硅藻土过滤器的格栅应定期取出来进行彻底的清洗。

用水龙冲洗，可去掉那些在反冲洗过程中不易于除去较为顽固的污垢。

隔一段时间可以将格栅拆下来清洗，并将他们浸泡在指定的药水中以便更进一步去除以钙沉积为主的污垢。

维护

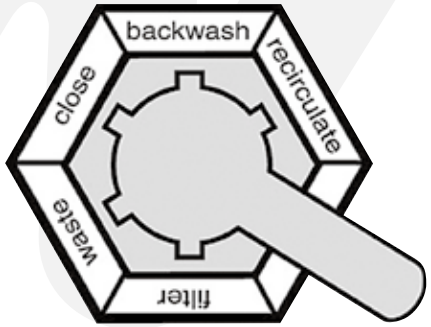
为了最大限度的延长Waterco Fulflo 硅藻土过滤器的使用寿命，您需要定期对过滤器进行维护保养。

每次反冲洗过后你需要补充新的硅藻土以覆盖过滤器中的格栅。

压力表的读数比初始运行读数高出50kPa时需要进行反冲洗操作。

Waterco Fulflo 硅藻土过滤器的最大运行压力为250kPa。

多向阀的操作



1. Filter – **过滤，即对水体进行过滤的位置。**
   来自管道系统的进水通过缸体顶部的多向阀流至过滤器内的滤床上。当水流经过滤床的时候脏物被截留在滤床中而得以除去。过滤后的水聚集到缸体的底部，由底部集水管收集到一起再经中心管流回多向阀并回到管路系统中。

2. Backwash – **反冲洗，冲洗过滤器滤料的位置。**
   水流经多向阀从过滤器底部逆向流过滤器滤床，并将之前滤床中截留的污染物一起从反冲洗排水管中排出。

3. Rinse – **漂洗，漂洗冲洗过滤器系统的位置。**
   水流经多向阀自上而下流过过滤器滤床并从反冲洗排水管排出。可使得滤床重新就位，并将残余的杂质颗粒物由反冲洗出水管冲出，以确保其不至在过滤过程中流回到泳池中。
   注意：四向阀上没有这个功能。

4. Waste – **排污，排掉砂床中的污染物的位置。**
   水流在多向阀的引流下不经过滤床直接由反冲洗管道排出。多向阀的这个位置用于安装高度低于泳池水平面时或者在泳池吸污时使用。

5. Re-circulate – **循环，即水流不经过滤器直接旁通至泳池的位置。**
   循环水经过多向阀不经过滤器直接旁通至泳池。

6. Close – **关闭，即阻止水进入多向阀的位置。**
   当系统中安装有水泵时，此位置不需使用。
   注意：四向阀上没有这个功能。

⚠ 警告

操作多向阀或多向阀在选择不同位置时，泵要保持关闭状态。

筒形过滤器

Waterco筒形过滤器不象砂缸过滤器、硅藻土过滤器那样需要象砂和硅藻土之类滤料，取而代之的是一种容易清洗和更换的折叠滤芯。

筒形过滤器也是游泳池和水疗池的理想选择。尤其在反冲洗无法实施的情况下更有优势。

安装

将过滤器从包装箱中取出，并将压力表安装在筒型过滤器盖上。将生料带顺时针缠绕在压力表丝口上，并将压力表旋紧在的压力表接口处。

注意：徒手拧紧压力表使其密封不漏气。

把筒形过滤器安装在需要的位置。
确保筒形过滤器安装在水平面上并和水泵同轴。

确保将水泵的出水管连接到筒形过滤器进水口上。在用胶水粘接U-PVC管与过滤器之前，先将配套的活接丝口与过滤器进出口连接。

注意：使用管材供应商建议的胶水粘接接口。

切割合适的管道并安装在在水泵和筒型过滤器之间，按照水泵安装手册说明正确地安装管道。

在管道粘接之前，最好将准备好的管道和管件试接于过滤系统上，这样可最好的确保管道匹配的正确性。

将管件、水泵及过滤器用胶水连接好后，要等24小时胶水干后才能运行系统。

将过滤器用螺栓固定在地面上是一个明智的选择。这将防止过滤器在运行的时候因水压的冲力引起移动。这对在拆卸过滤器顶盖锁环时，防止产生对管道的不必要的扭压也是很有帮助的。

启动程序

如果严格按下列维护程序操作，则筒形过滤器将是一种能使用多年的简单而有效的设备。过滤系统的初次启动和清洗后的启动程序是完全一样的。

1. 在过滤器开始运转前后确定所有的阀门都是打开的。
2. 保证过滤器管道的正确连接，从水泵出口出来的水管必须连接到过滤器的进水口上。
3. 打开过滤器顶部的排气阀。
4. 将泳池水泵灌满水。（参考泵安装和操作手册）
5. 打开泳池水泵开始运转将过滤器内部的空气全部赶走，直到有水从顶部的排气阀冒出为止。
6. 拧紧排气阀。
7. 过滤器已经为开始运转作好准备。

⚠ 警告

有些情况下，在设备准备就绪前需要重复几次操作以上的步骤。
当调整排气阀排放系统内的空气时人体不要站在过滤器顶盖上方，以免排气阀因松动飞出造成意外伤害。

维护

为了最大限度的延长你所使用的筒形过滤器的使用寿命，你需要定期的给你的过滤器做维护保养。

当过滤器首次启动并已排净空气时,记录下压力表的读数.,你要意识到这个过滤器的运行压力的数据对你来说是很重要的，它是过滤器的运行压力。

一旦压力表的的读数比压力表的初始读数高出50kPa就需清洗筒形过滤器滤芯。筒形过滤器具备有350kPa的最大运行压力（对于聚丙烯外壳的筒形过滤器而言）。

例如：如过滤器正常运行时的压力是60kPa，当其压力表读数上升至110kPa时，则需清洗该过滤器滤芯。

滤芯清洗

1. 松开过滤器顶盖锁环并将顶盖从缸体上取下。有时内部压力很大你需要先将排气阀打开将过滤器内的空气排放干净再来取下过滤器盖。
2. 从过滤器内取出滤芯。
3. 用干净的水对滤芯的每个褶皱进行清洗，确保将褶皱间清洗干净。
4. 将滤芯正确的安装在过滤器内，并确保正确就位。
5. 盖上盖子并拧紧顶盖锁环。
6. 在过滤器启动之前确定已经将密封圈安装。
7. 按照启动程序重新启动。

⚠ 警告

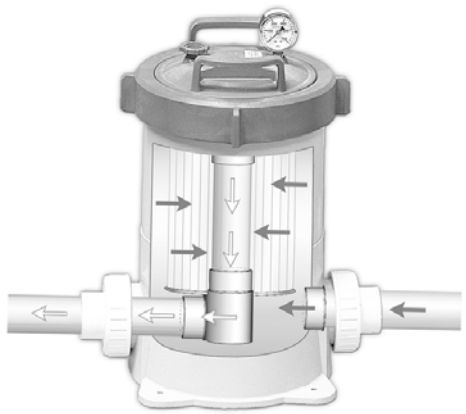
不要将过滤器琐环拧得的过紧！

建议你定期将滤芯放在适当的溶剂中浸泡一个晚上以上。这将清洗掉在常规冲洗中很难除去的的污垢。

一些泳池设备专卖店同样可以提供正确的清洗服务，或者按照产品说明书上的说明来操作。

清洗周期依照泳池的使用情况来定。任何情况下，清洗的时间不能超过12个月。

流程图



常见故障分析

常见问题	可能的原因/ 解决的办法
水不干净	消毒剂的用量不够 。
	使用错误的药品 。
	泳池使用过于频繁，脏物太多 。
	循环流量不正确 。
	运行时间不足（增加泵的使用时间） 。
	过滤器太脏（按说明书清洗） 。
	滤料穿透或破损 。
流量小	检查滤渣篮 。
	检查水泵的进水段看是否有漏气现象发生。
	检查进出水管段看是否有堵塞现象发生 。
	过滤器需清洗或需更换过滤器滤料 。
	泳池水位太低 。
	水泵没被灌水 。
	水泵叶轮被堵塞 。
	没有使用滤篮或者没定期对其进行清洗 。
	水泵运行速度降低（电压太低） 。
过滤器清洗周期过短	内壁生有藻类，检查消毒剂的使用是否有效 。
	检测PH和总碱度。
	水泵的输出流量超过过滤器的要求， 核实水泵的性能曲线。
	清洗无效、核对具体情况并更换滤筒 。
启动压力过高	泳池或水疗系统回水口太小 。
	回路上部分阀门被关掉。
	水泵的型号过大，核对并重新选型。

常见问题	可能的原因/ 解决的办法
砂缸和硅藻土过滤器	
反冲洗时有滤料带出	过滤器中滤料加入数量太多 。
	水流量太大 。
	过滤器滤料规格使用错误 。
媒质流回泳池/温泉池	过滤器处于旁通状态 。
	检查是否属于滤料而非其他来源的杂质 。
	底部集水管损坏 。
	多向阀损坏或者不匹配 。
	不正确的滤料规格 。
筒型过滤器	
脏物流回泳池	滤芯损坏，更换滤芯 。
	过滤器内部的O型圈破损，更换O型圈 。

保修

请查阅 Waterco 的产品保修卡。

在承诺产品质量和服务的条件下,运水高保留在未经过通知的情况下,以任何方式和在任何时间改进产品的权利。

本手册为我方对产品性能最大范围的阐述,因产品的使用不在我方的实际控制之下,因此任何超出本手册范围使用建议将不在保修范围之内。