

Owners Manual

WATERCO
Water, the Liquid of Life

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MICRON SAND FILTERS



WARNING

This equipment must be installed and serviced by a qualified technician in accordance with all applicable codes and ordinances. Improper installation can create hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.

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Notice to Installer

This manual contains important information about the installation, operation and safe use of this product. Once installation is complete, **this manual must be given to the owner/ operator of this equipment.**

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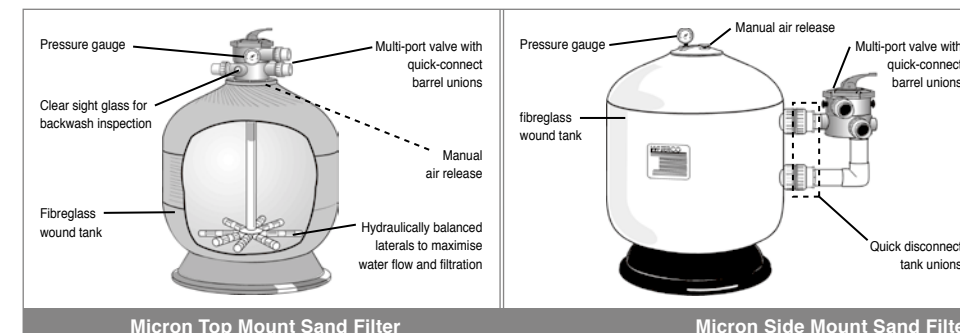
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SAFETY INFORMATION

1. Micron Sand Filters are designed to work with water at a temperature > than 0° C and < than 45°C. The filter should never be operated outside of these temperatures or damage may occur.
2. The installation should be carried out in accordance to the safety instructions of swimming pools and the specific instructions for each facility.
3. Any modification of the filter requires the prior consent from Waterco. Original replacement parts and accessories authorized by the manufacturer ensure a high level of safety. Waterco assumes no liability for the damage and injuries caused by unauthorised replacement parts and accessories.
4. The user should make sure that the installation is carried out by qualified authorised persons and that these persons have first carefully read the following instructions.
5. The operating safety of the filter is only guaranteed if the installation and operation instructions are correctly followed.
6. In the event of defective operation or fault, contact Waterco or its nearest authorised service agent.
7. To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
8. Incorrectly installed equipment may fail, causing severe injury or property damage.
9. Chemical spills and fumes can weaken Swimming Pool/ Spa. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

MICRON SAND FILTER

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.



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

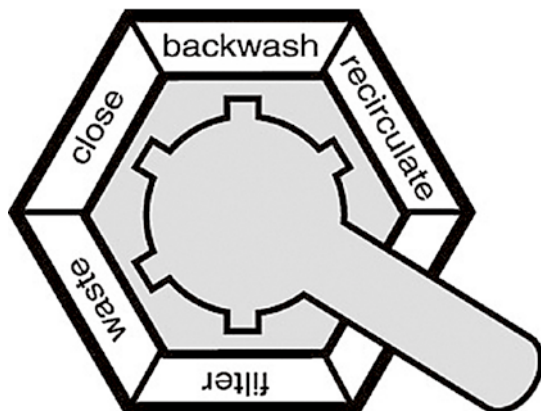
1. Check that the incoming water pressure is within the filter's recommended working pressure and ensure that a pressure limiting valve is installed if using mains water or a high pressure pump.
2. Ensure that a foot valve (non return valve) is installed if the pump is installed 500mm above the water 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.

MULTIPORT (4 & 6 Way) 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 Multiport 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.

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

● **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:** During initial clean-up of the pool water, it may be necessary to backwash frequently due to the unusually heavy initial dirt load in the water.

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 Instructions:-

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.

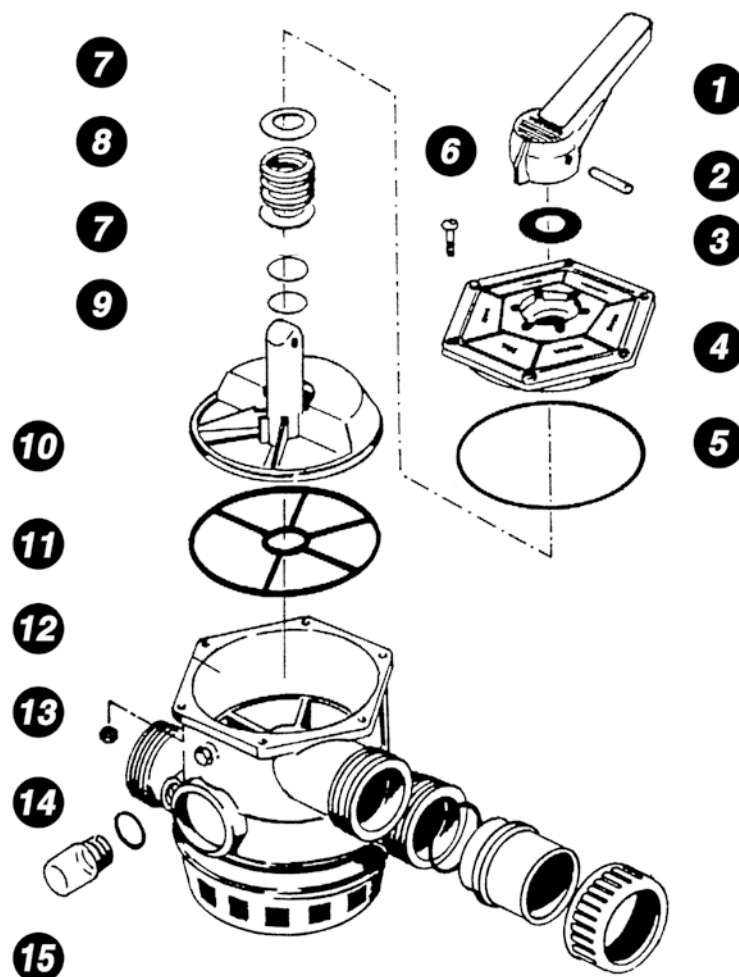
And within these tolerances be balanced to the Langelier Saturation Index within a range of -0.2 to +0.2.

- **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.

MULTIPORT VALVE INTERNALS

1. Handle.
2. Pin.
3. Teflon ring.
4. Top plate.
5. Top plate O-ring.
6. Top plate screw.
7. Teflon washer.
8. Spring.
9. Axle O-ring.
10. Rotor.
11. Spider gasket.
12. MPV body.
13. Air- bleed port.
14. Sight glass O-ring.
15. Sight glass.



TROUBLE SHOOTING

Above normal or excessive force to operate the Multiport Valve	Scoring or jamming with foreign matter or debris. If this condition persists after rinsing, disassemble the valve to clear. Continued operation of the valve may result in a non-sealing condition (damage to spider gasket). This will lead to water loss to the backwash line or to inefficient filtration.
Dirty Water	1. Insufficient filtration time. 2. Heavy contaminants or dirt load. 3. Dirty filter, requires backwashing. 4. Air leaking on suction (influent line). 5. Pump impeller vanes blocked. 6. In sufficient water supply (water level low, blockage). 7. Pump not primed. 8. In correct water chemistry. 9. Excessive flow of water for filter size. Foreign matter or debris forced through filter bed and through the under drain. 10. Other restrictions including (pool suction cleaners) resistance from other inline equipment such as strainers. Operating the filter on recirculate will determine if the restriction is in the filter. 11. Clogged or channeled filter media. Perform backwash or regeneration. Refer to maintenance section.
Filter Media in the backwash	1. Excessive quantity of media in the filter. 2. Excessive water flow. 3. Incorrect sized or grade of filter media.
Filter Media returning to Swimming Pool/ Spa	1. Filter is on recirculate. 2. Verify it is the filter media and not from another source. 3. Damage to the under-drain laterals. 4. Damage or incorrect fit of Multiport Valve are correct. 5. Incorrect or mixed grades of media in the filter.
Short filtration cycles	1. Presence of algae or a scale build up. 2. Check water chemistry. 3. Excessive water flow, check pump size, mains water flow. 4. Filter blocked through calcium etc. clean filter media.

WARRANTY

Waterco is proud to show its ultimate confidence in its range of Micron Sand Filters by offering a 10-year tank warranty and 1 year warranty on all other components. Commercial applications attract a 5-year (1 year full plus 4 years pro rata) tank warranty. For more information 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.