

# MULTI CYCLONE PLUS/ULTRA

## CENTRIFUGAL FILTER

## Installation and Operation Manual



### WARNING

This equipment must be installed and serviced by a qualified technician. Improper installation may result in property damage, serious injury or death. Improper installation and/or operation will void the warranty.



### Notice to Installer

This manual contains important information about the installation, operation & safe use of this product. Once the product has been installed **this manual must be given to the owner / operator of this equipment.**

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## **SAFETY INFORMATION**

1. The Waterco MultiCyclone Plus/Ultra 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 local safety standards and bylaws.
3. Any modification of the filter requires the prior consent from Waterco. Original replacement parts and accessories authorised 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.
8. Incorrectly installed equipment may fail, causing severe injury or property damage.
9. Chemical spills and fumes can weaken Swimming Pool/Spa equipment. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

## MULTICYCLONE PLUS/ULTRA

MultiCyclone Plus/Ultra combines centrifugal and cartridge filtration into one streamlined housing, creating an ultra compact filtration system.

- Dual stage filtration.
- Minimal maintenance.
- Save water and energy.
- 12/16 hydrocyclones.
- Plus 40ft<sup>2</sup> & 75ft<sup>2</sup> Ultra pleated filter cartridge.

### Dual stage filtration

Incoming water tangentially enters its multiple hydrocyclones, generating a strong centrifugal effect. Approximately 80% of the incoming dirt load is spiralled down to its clear sediment chamber. The outgoing water is finally polished via its inbuilt cartridge filter, producing crystal clear water.

### Simple maintenance

MultiCyclone Plus/Ultra's sediment chamber is easily cleaned by opening its purge valve. Only 15 litres of water is discharged.

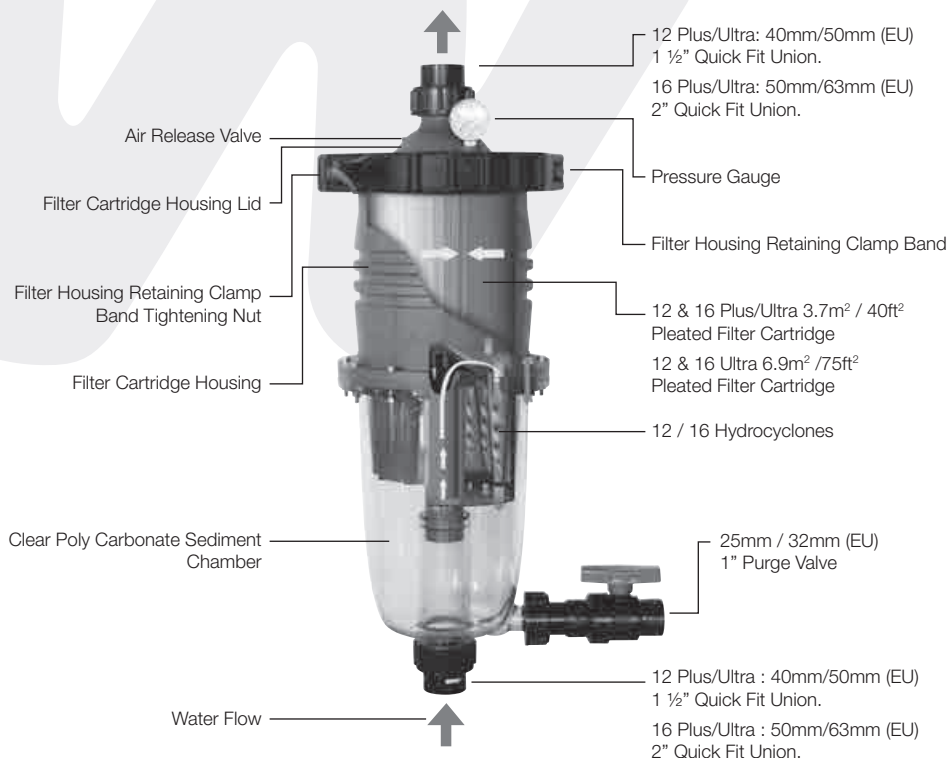
### Ultra compact filtration

MultiCyclone Plus/Ultra's streamlined design means the entire filtration system can be installed vertically, reducing the footprint of the equipment pad. Additionally, minimal pipework reduces filtration system's overall head loss.

### Extended filter capacity

The MultiCyclone Plus/Ultra's centrifugal section filter pre-filters up to 80% of the incoming dirt load before it reaches the filter cartridge, magnifying the capacity of its filter cartridge by up to 5 times. MultiCyclone Plus has a filtration capacity equivalent to a 200 ft<sup>2</sup> & Ultra 375ft<sup>2</sup> cartridge filter.



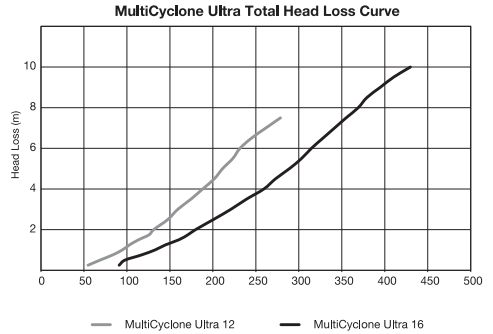
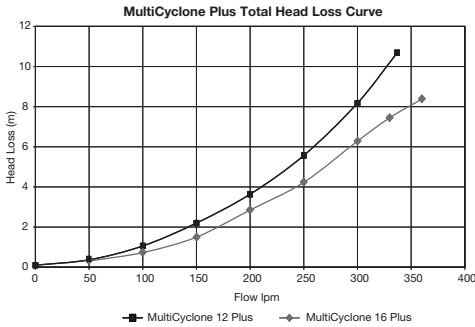


**Note:** The MultiCyclone Plus/Ultra centrifugal section is designed to filter sediment that is heavier than water; floating debris cannot be filtered out by centrifugal filtration.

**Note:** Above image represents MultiCyclone 12 & 16 Plus with 40ft<sup>2</sup> filter cartridge & MultiCyclone 12 & 16 Ultra 75ft<sup>2</sup> filter cartridge.

Model	Connection Ports	Minimum Flow	Maximum Flow	Filter Area	Max. Pressure
MultiCyclone12 Plus	40mm / 50mm (EU) / 1 1/2"	40lpm / 2.4 m <sup>3</sup> /hr / 11gpm	152lpm / 9.1 m <sup>3</sup> /hr / 40gpm	3.7m <sup>2</sup> / 40 ft <sup>2</sup>	350 kPa (50psi)
MultiCyclone12 Plus (Above Ground Pool Model)	40mm / 50mm (EU) / 1 1/2"	40lpm / 2.4 m <sup>3</sup> /hr / 11gpm	152lpm / 9.1 m <sup>3</sup> /hr / 40gpm	3.7m <sup>2</sup> / 40 ft <sup>2</sup>	250 kPa (36.3psi)
MultiCyclone16 Plus	50mm / 63mm (EU) / 2"	50lpm / 3 m <sup>3</sup> /hr / 13gpm	152lpm / 9.1 m <sup>3</sup> /hr / 40gpm	3.7m <sup>2</sup> / 40 ft <sup>2</sup>	350 kPa (50psi)
MultiCyclone12 Ultra	40mm / 50mm (EU) / 1 1/2"	40lpm / 2.4 m <sup>3</sup> /hr / 11gpm	225lpm / 13.5 m <sup>3</sup> /hr / 59.4gpm	6.9m <sup>2</sup> / 75 ft <sup>2</sup>	350 kPa (50psi)
MultiCyclone16 Ultra	50mm / 63mm (EU) / 2"	50lpm / 3 m <sup>3</sup> /hr / 13gpm	280lpm / 16.8 m <sup>3</sup> /hr / 74gpm	6.9m <sup>2</sup> / 75 ft <sup>2</sup>	350 kPa (50psi)

# MULTICYCLONE PLUS/ULTRA TOTAL HEAD LOSS CURVE



## INSTALLATION

Be sure to comply with the local plumbing codes.

Be sure that all provisions for wastewater disposal meet local, state or national codes. Do not discharge water where it will cause flooding or damage.

If the incoming water pressure is higher than the maximum operating pressure of 350kPa/ 3.5Bar/50psi, or 250kPa/ 2.5Bar/ 36psi depending on the model, a Pressure Regulating Valve (PRV) must be installed upstream of the filter inlet.

The PRV should be set to 90% of the maximum operating pressure of the tank.

If the incoming water flow is less than the filter's minimum flow requirements, the filter's filtration efficiency will be affected, please consult Waterco.

### Typical 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 purge valve and air release valve is convenient and accessible for operation, servicing and winterising.
4. Ensure that the compliance label is facing the front to allow easy identification.



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 purge valve.
7. Allow sufficient clearance around the filter to permit visual inspection of the entire system.

## 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 are installed if the pump is installed 500mm/20" above the water level.
3. If the filter is installed below the water level or connected to mains water, isolation valves should be installed at the inlet and outlet of the filter. This will prevent water flow during any routine maintenance.
4. Minimise the length of pipe and the number of fittings to minimise restrictions to water flow.
5. Ensure that all plumbing connections are glued and tightened securely to prevent leaking.
6. Ensure solvents are not excessively applied to fittings as this could run into "o"-rings and create sealing problems.
7. Do not over tighten fittings or adapters.

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

### CAUTION

#### Use only recommended glue for connection pipe and fittings

Cut and fit the pipe and fittings onto the MultiCyclone Plus/Ultra 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.

## Plumbing Connection

1. Connect the pipe extending from the pump outlet to the inlet of the MultiCyclone Plus/Ultra.
2. Connect from the pipe extending from the outlet of the MultiCyclone Plus/Ultra to the next component in line with the filtration system or water return line.
3. Glue all plumbing to barrel union fittings in accordance with glue (solvent) manufactures specifications and allow 24 hours to set. Ensure glue (solvent) is not excessively applied to fittings as this could run onto “o”-rings and create sealing problems.

**Note:** Waterco recommends that a shut off valve be installed after the MultiCyclone Plus/Ultra on the pool return line to assist with flushing out the collected debris. Please refer to “Insufficient Water Pressure”.

4. Turn on pool pump. Be sure to check that there are no leaks from the connectors. If required, tighten by hand.

## START UP PROCEDURES

The MultiCyclone Plus/Ultra is an advanced and highly efficient filter system that 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 the MultiCyclone Plus/Ultra is plumbed correctly.
2. Ensure that all valves installed before and after the MultiCyclone Plus/Ultra are open.
3. Loosen the air release valve on top of the MultiCyclone Plus/Ultra 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 MultiCyclone Plus/Ultra. Water will run from the air release valve.
6. Re-tighten the air release valve.
7. The filter is primed and ready for operation.

**Note:** 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 of the MultiCyclone Plus/Ultra whilst adjusting the air release valve to purge the system of air.***

***Injury may occur if air release valve becomes loose.***

# MULTICYCLONE PLUS/ULTRA / FILTER MAINTENANCE

The MultiCyclone Plus/Ultra filter maintenance is determined by the following conditions:

1. The sediment chamber is half filled with sediment. This accumulation of sediment can be visibly monitored through the MultiCyclone Plus/Ultra's clear sediment chamber. The MultiCyclone Plus/Ultra is cleaned by simply opening the purge valve. Only 15 litres (4 gallons) of water is discharged to clean the MultiCyclone of sediment.
2. A pressure gauge reading of 50kPa (7.2psi) above the operating pressure may result in a reduced flow rate that is insufficient to meet the requirements of the pool.

**Example: Filter operates normally at 60kPa (8.2psi) needs to be cleaned at 110kPa (16psi).**

## Flush out the sediment chamber

### With pump running:

Whilst the water pump is running simply open the sediment purge valve until the sediment has been flushed out. This is visible through the clear sediment chamber. Once the sediment has been flushed out, close the purge valve.

### Without pump running:

Alternatively, switch the pump, off. Open the air release valve and then open the purge valve. The water will drop through the MultiCyclone Plus/Ultra flushing out most of the debris from the sediment chamber. Then close the air release valve and turn on the pump and the turbulence of the water entering the sediment chamber will flush out the rest of the sediment. Once the sediment chamber has been cleansed, close the purge valve, start the pump and close the air release valve once water is flowing out through the air release valve.

## INSUFFICIENT WATER PRESSURE

In situations where the water flow from the pump is not powerful enough purge the sediment out of the sediment chamber. Waterco recommends fitting a 2 way valve after the MultiCyclone Plus/Ultra on the pool water return line.

The 2 way valve is used to throttle the flow of water out of the MultiCyclone Plus/Ultra, increasing water turbulence through the sediment chamber and improving its purging action.

Whilst the pump is operating, open the purge valve, and then partially close the 2 way valve, throttling the water flow sufficiently to purge the sediment chamber of trapped sediment. Once the sediment chamber is clean, open the 2 way valve and then close the purge valve.

### CAUTION

**Do not close the 2 way valve prior to opening the purge valve and do not close the purge valve while the 2 way valve is closed or partially closed. Both valves should never be closed or partially closed at the same time.**



## FILTER CARTRIDGE MAINTENANCE

To ensure maximum life from your MultiCyclone Plus/Ultra's filter cartridge you need to maintain the filter cartridge 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 operating 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 once the pressure gauge has reached 50kPa (7.2psi) above the operating pressure.

***Example: Filter operates normally at 60kPa (8.2psi) needs to be cleaned at 110kPa (16psi).***

### Cartridge Cleaning

Prior to removing the MultiCyclone Plus/Ultra cartridge filter's lid, you will need to release the pressure from the filter cartridge housing. With the pump off, loosen the air release valve on top of the MultiCyclone Plus/Ultra filter lid to release pressure from the filter housing.

1. Undo and remove the clamp around the cartridge filter's lid by unscrewing the tightening nuts, this can be either by hand or using a 25mm (1") open end spanner/adjustable wrench on the moulded hexagon section and remove the lid off the filter tank.
2. Remove the filter cartridge from the filter housing.
3. Using a garden type hose clean the surface of the pleated element. Make sure to clean between the pleats.
4. Place the filter cartridge back into the filter housing ensuring that it is seated correctly.
5. Ensure the lid "o"-ring is clean of any debris and is correctly seated into filter body "o"-ring groove prior to lid being refitted.
6. Place the lid onto the filter housing and refit retaining clamp band and tightening nuts using a 25mm (1") open end spanner/adjustable wrench ensuring lid is correctly fitted.
7. Refer to the start up procedure to recommence operation.

### CAUTION

***Do not over tighten the lid tightening nuts.***

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

Some swimming pool stores offer a filter 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.

## GENERAL MAINTENANCE GUIDE

To ensure the maximum life of the MultiCyclone Plus/Ultra, please follow the procedures below:

1. Clean the filter cartridge regularly according to the instructions set under “MultiCyclone Filter Cartridge”
2. Maintain a correct chemical balance of 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.

Also, 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.

3. Mains water and rural water supplies need to be monitored. Saturation (life) in mains water or bore (rural) will vary depending on water quality.
4. To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly.
5. Replace the pressure gauge if faulty readings are observed.

## WINTERISING

Proper winterising procedures should always be taken in order to protect your filter in cold climates (temperatures below freezing point).

1. Switch off the Pump/Close the inlet valve.

2. Open the air release valve and open the purge valve to allow water to flow out of the MultiCyclone Plus/Ultra.
3. Remove any drain plugs from the pump.
4. Drain water from the pipe work.

## TROUBLESHOOTING GUIDE

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.
	Air leak on suction line
	Pump impeller vanes blocked
	Other restrictions include (pool suction cleaners) resistance from other inline equipment such as strainers.
Pump not primed.	
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.
Dirt Returns to Pool	Hole in filter cartridge, replace filter cartridge.
	Worn "o"-ring seal inside filter, replace o-ring.

## WARRANTY

MultiCyclone Plus/Ultra is covered by a 2 year warranty and 1 year warranty on labour. Commercial installations are covered by a 1 year warranty.

Please refer to Waterco's warranty terms and conditions.

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