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QihangRAS

# User Manual

## QihangRAS Combi Drum Filter (CDF)

*Version 2.0  2023.4.23*

: www.qihangras.com

**Follow us:**

# Welcome

## Congratulations to your new Combi Drum Filter (CDF) !

In order to ensure that your CDF works properly, you must read this manual carefully. Please follow all instructions, hints and information carefully to avoid any problems with the operation of CDF.
If any questions arise that are not addressed in this manual, please contact your supplier.


First Release, 2022



### Warning/Guideline

This label refers to warnings, advisories and guidelines.

### Electrical Hazard

Electric shocks can cause death or serious personal injury and pose a hazard to the equipment. Ensure that no unauthorized persons have access to or are able to reach the equipment. Disconnect power to the device before opening the device or terminal box.

Dangerous high voltage may persist for up to 3 minutes after disconnecting power due to the DC connection capacitor. Do not operate the equipment without the power supply properly grounded.

### Rotaring

Make sure that all rotating parts, including the internal fan, are safely accessible when the motor is running. Operating the unit with automatic restart can be dangerous to the operator. After a power failure, the motor will start automatically if it was running at the time of the power failure.

## *Important Security Information And Warnings*

regarding the operation and installation, as well as for trouble shooting.
We recommend to keep a copy of this manual directly at the location of your filter, so that it is available for technicians etc., if necessary.
PLEASE NOTE!
QihangRAS is not responsible for any damages of the YCM-CDF or injuries which occur due to neglect of the manual and the security notes and instructions contained in it

# MACHINE PARAMETER

| Model: | YCM-C5 | YCM-01 | YCM-02 | YCM-03 | YCM-04 | YCM-05 | YCM-06 |
|---|---|---|---|---|---|---|---|
| Max Water Flow($m^3$/h): | 5$m^3$/H 1320 gallon/H | 15$m^3$/H 3962 gallon/H | 18$m^3$/H 4755 gallon/H | 23$m^3$/H 6075 gallon/H | 27$m^3$/H 7132 gallon/H | 32$m^3$/H 8453 gallon/H | 37$m^3$/H 9774 gallon/H |
| Media(L): | 30.24L | 105.33 L | 131.84L | 150.62L | 170.96L | 190.31L | 255L |
| Mesh Size(μm): | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| Machine Size(mm): | 1000×350×500 | 1200×620×700mm | 1300×650×720mm | 1400×680×740mm | 1500×710×760mm | 1600×730×780mm | 1800×800×820mm |
| Inlet Diameter(mm): | 32mm | 75mm | 75mm | 110mm | 110mm | 110mm x2 | 110mm x2 |
| Outlet Diameter(mm): | 50mm | 110mm | 100mm | 110mm x2 | 110mm x2 | 110mm x3 | 110mm x3 |
| Waste Tray Outlet Size(mm): | 32mm | 40mm | 40mm | 40mm | 40mm | 40mm | 40mm |
| Sewage Water Outlet Diameter(mm): | 32mm | 40mm | 40mm | 40mm | 40mm | 40mm | 40mm |
| Max Power(W): | 131W | 695W | 695W | 735W | 735W | 835W | 835W |
| Gear Motor Power(W): | 15W | 25W | 25W | 25W | 25W | 25W | 25W |
| Air Pump Power(W): | 16W | 40W | 40W | 40W | 40W | 40W x2 | 40W x2 |
| Washing Pump Power | 80W | 550W | 550W | 550W | 550W | 550W | 550W |
| UV Lamp: | 11W x2 | 40W x2 | 40W x2 | 60W x2 | 60W x2 | 60W x3 | 60W x3 |

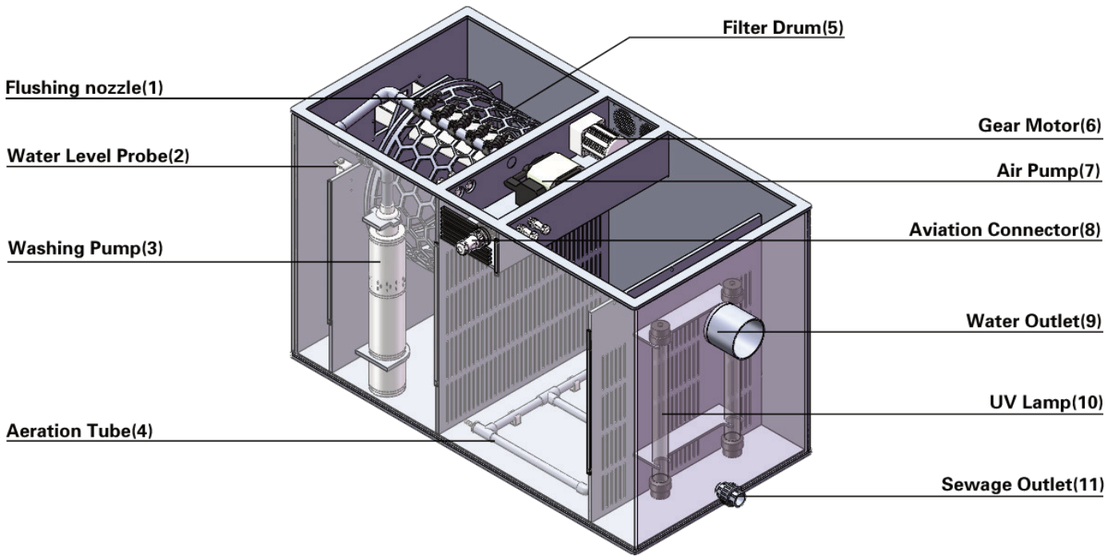
*The detial size may different based on voltage and customized,thanks for understanding

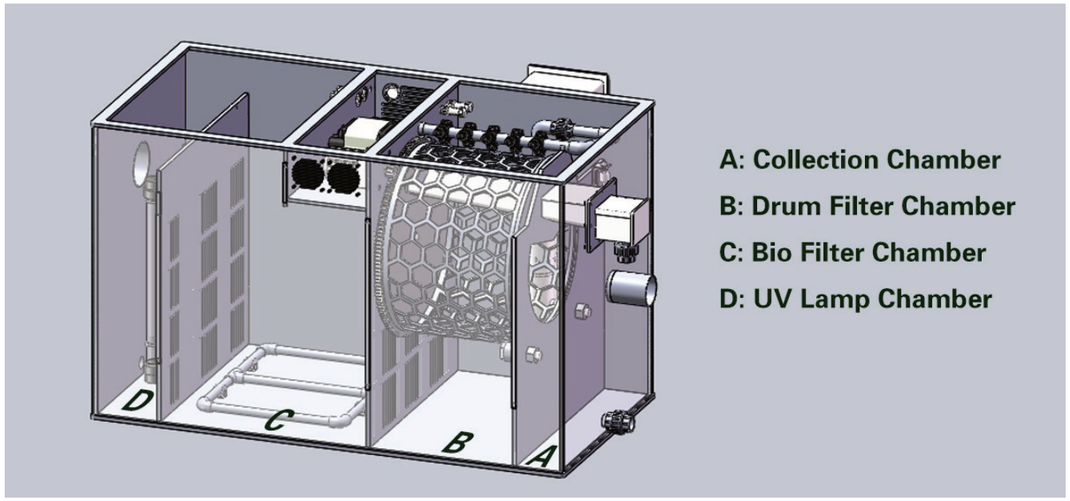
# Introduction

## Description and Function of the CDF

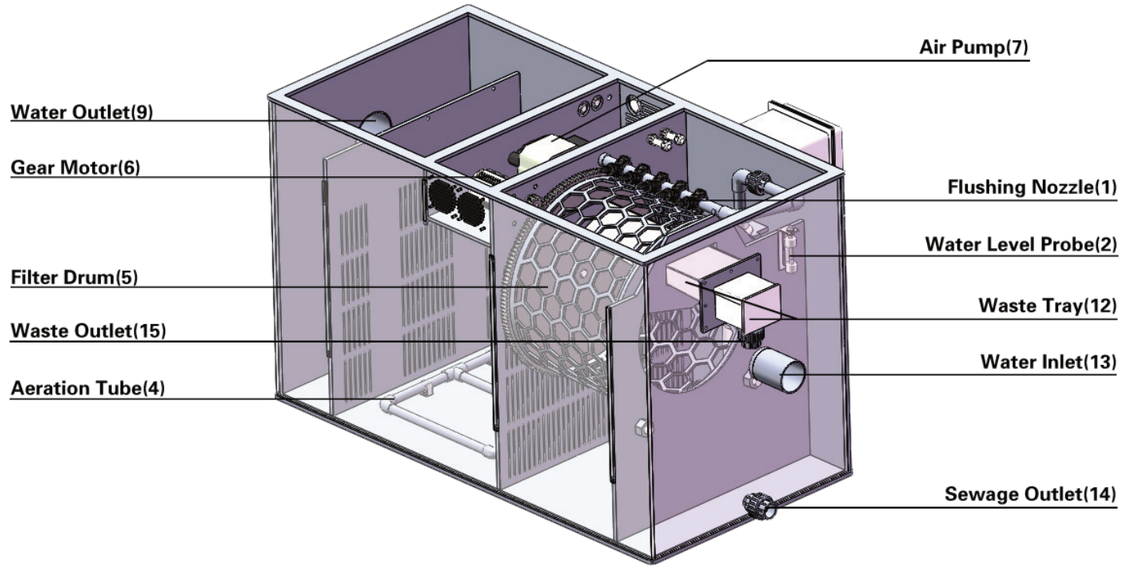
The Combination Drum Filter is the symbiosis of all our experience in the area of mechanical and biological filtration, resulting in a “Turn key” solution: you just connect the in- and outlets to your pipeworks and connect the power plug. The system is based on the principle of a “moving bed” using the new Combination Drum Filter biocarrier that is brought into movement using integrated aeration.

Instead of using traditional brush to filter fish feces, residual leaves, residual bait and other particles, use microfilter to filter particles smaller than 70 microns.






## How CDF Works.

Drum filtration part: Untreated water from the fish pond enters the YCM Combi Drum Filter through the water inlet (13). The water flows into the collection chamber (A) and then into the interior of the filter drum (5). Through a stainless steel screen (standard 70 micron/200 mesh) outside the drum, all particles larger than 70 microns remain inside the drum and the water filtered through the screen leaves the drum filter chamber.

Biological filer part: The filtered water enters the biological filtration chamber (C). Here, the mobile biological bed with aeration can quickly cultivate bacteria, stabilize water quality, decompose toxins, degrade ammonia and nitrogen, degrade residual chlorine in water, degrade water impurities, and establish nitrification system; the filter material is kept in suspension by the air coming from the aeration tube (4), which provides a guarantee for the cultivation and reproduction of beneficial bacteria while also adding oxygen to the water.

UV sterilization part: The water enters the UV lamp chamber (D) after the bio filter chamber, where the UV lamp can sterilize the water and effectively inhibit the growth of bacteria and green algae.

Automatic flushing function: The waste particles left in the drum during filtration of the rotary drum filter slowly clog the filter screen, reducing the amount of water passing through the screen. As a result, the water level in the collection chamber (A) rises. Once the water level touches the level sensor (2), causing its float to float up, the rotary drum filter initiates an automatic flush.

The water level difference during flushing can be set manually by adjusting the height of the level sensor. When you clean the YCM Combi Drum Filter chamber, you can use the sewage outlet (14) and the sewage outlet (11) to drain all the water inside the equipment.

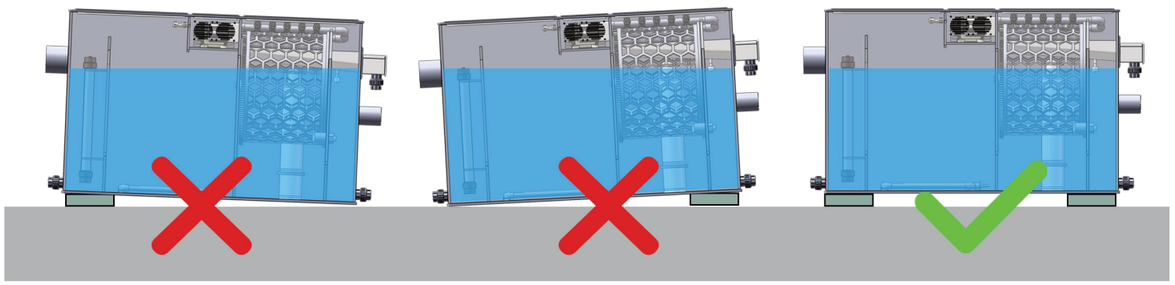
# Before Install

## Safety instructions

This system may cause bodily harm or damage to property if you do not use it properly and in accordance with all safety guidelines, or if you attempt to use it for any purpose other than that for which it was designed. This system must never be operated by children or anyone under the age of 16, or by anyone who has a physical, mental or sensory impairment or lack of experience and knowledge, unless they are under supervision and have been instructed on the safe usage of the system and informed of the dangers associated with it. Children must be made aware that this system is not a toy. Cleaning and maintenance must be performed by an adult user. This must never be performed by a child, even if they are under supervision

## Important Notes

1 . As the CDF in running model will be filed with water, it is important that it is placed on a flat surface supporting the combi drum filter.



2. Before CDF operation, please make sure there is more than one-third water inside the CDF tank to ensure the backwash pump does not idle.

3. Check the health of the backwash nozzle, whether there is debris clogged in the nozzle and whether the screws are slack.

4. Note! Electrical shock hazard

• Always switch off the current to the system before coming into contact with the pond water.



• Secure the system to prevent it from unintentionally being switched on.
• Never connect the system to a power supply that is fitted with a dimmer.
• Do not use the system in combination with a switch that has a timer function.
• Only switch on the control box if the pump is below the water level and the electrodes are below the surface.

## Safe use

Never use this system in connection with faulty electrical cables or a defective housing.

• Never pull on the cables to adjust the placement of the system. Ensure that the electrical cables are not pulled tightly.

• Lay the cables through a secure duct to avoid damage and make sure no one can trip or fall over them.

• Only open the housing of the motor or other electrical components if this is necessary as instructed by the user manual.

• Only perform maintenance and other tasks on the system as described in this user manual.

• In case of any problems that you are unable to resolve, please contact supplier.

• Only use original spare parts in combination with this system.

• Do not attempt to modify the technical features or specifications of this system in any way.

• The connector cables cannot be replaced. In case of a broken cable, the entire system or affected part must be replaced entirely.

• When using in the open air, a roof must be placed above the control box and a rain-proof cover must be placed above the motor.

• Over-voltage in the mains can cause the system to malfunction.

• Do not inhale the spray mist from the sprayer system. The spray mist may contain harmful bacteria.

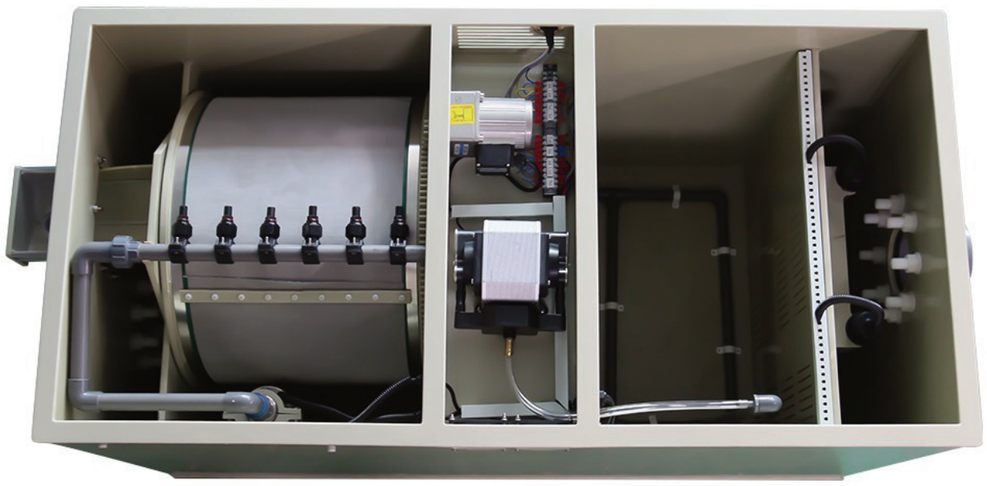
## Machine Checking

1. The CDF should be carefully inspected before installation. please ensure that the packaging and CDF do not show any signs of damage.

2. The packaging and CDF do not show any signs of damage. Check the inside of the CDF and make sure there are no residues or items inside.

3. In addition, the Teflon seal between the drum and the tensioner ring must be checked for proper fit. This must be checked (no gaps). If there are too lose Teflon seals, tighten the tensioning ring (not too tight).

4. The correct fit of the drive gear of the motor should also be checked.Make sure the drive gears can be linked and check the looseness of the gears. If there is any damage, please notify your local dealer immediately!



5. Check the health of the backwash nozzle, whether there is debris clogged in the nozzle and whether the screws are slack.

6. Before Combi Drum Filter operation, please make sure there is more than one-third water inside the Combi Drum Filter tank to ensure the backwash pump does not idle.

7 . As the CDF in running model will be filed with water, it is important that it is placed on a flat surface supporting the drum.



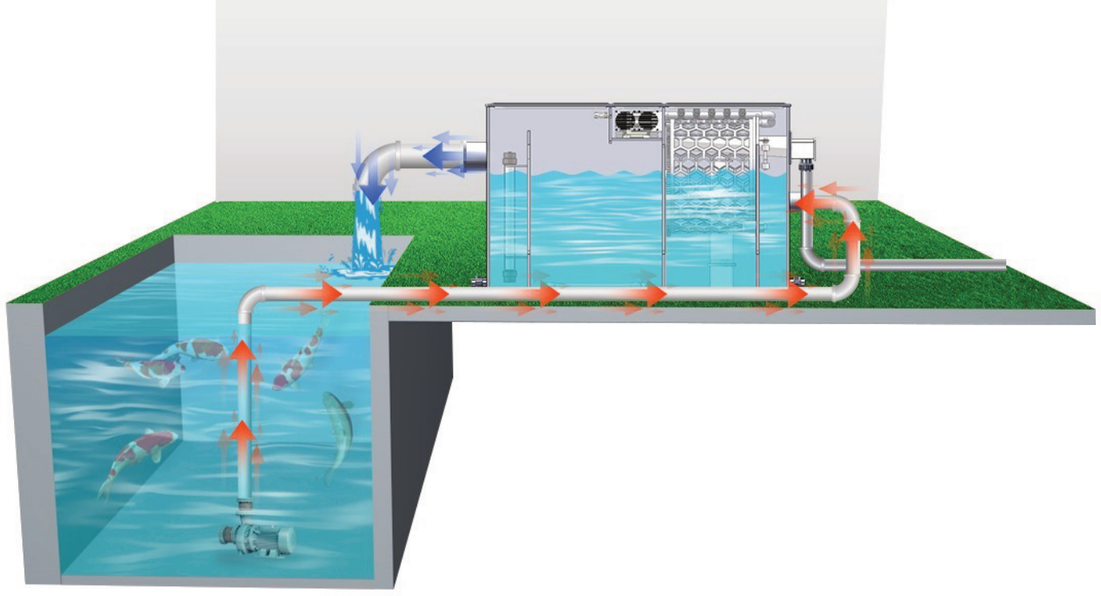
# Installation

## Pump-Fed System

Place your drum filter on a solid surface that is completely level. You can then connect the inlet pipe from your pump, followed by the outlet pipes. The water will be pumped into the filter by the pump. Exits that are not used must be sealed.

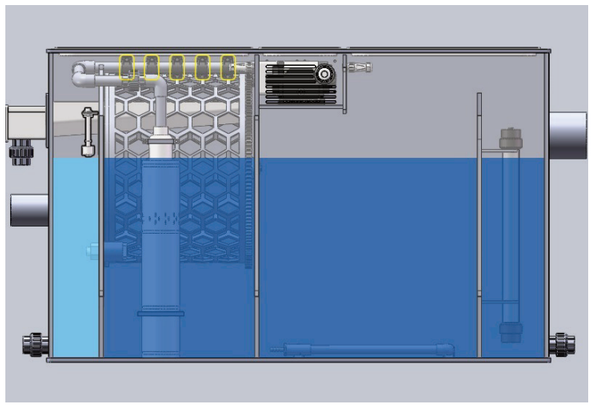
In this case, you will need to assemble the float upside for the drum section (at the inlet) collection chamber.

If the float is in the lowest position, the system is in standby. If the float is in highest position (float is floating) then the process will commence (drum will start rotating and the rinse pump will spray-clean the screen). This will last for 9 seconds (standard value)

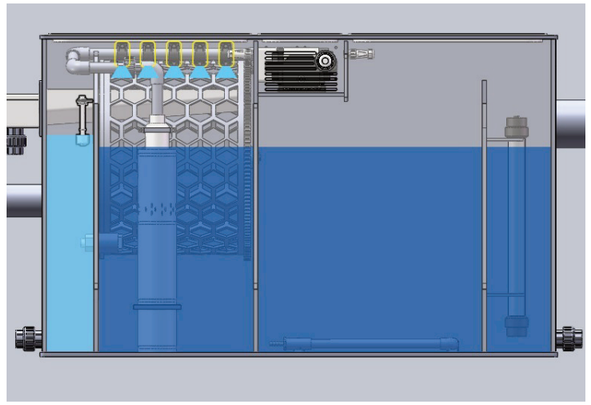


IMPORTANT NOTICE FOR OPERATION IN PUMP FED MODE:
The connections on the inlet side will need to be reduced to the size of your pump outlet(s). Any inlets which are not used will need to be closed with caps!

## Probe:

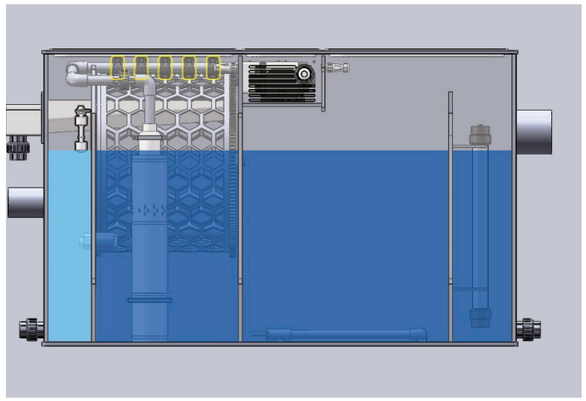


Pump-fed arrangement, not flush situation, probe is dry

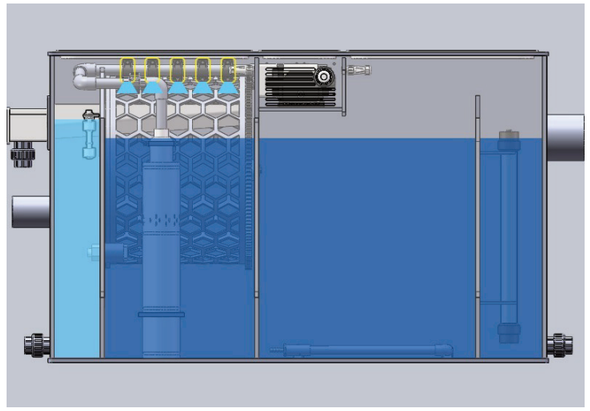


Pump-fed arrangement, flush situation, probe touches water

## Double Float Probe:



Pump-fed arrangement, not flush situation, dual float probes, flushing turned off when both floats are in the down state



Pump-fed arrangement, flush situation, dual float probe, flushing is turned on when both floats are on float

*Light blue is unfiltered water.*
*DarkBlue is filtered water.*

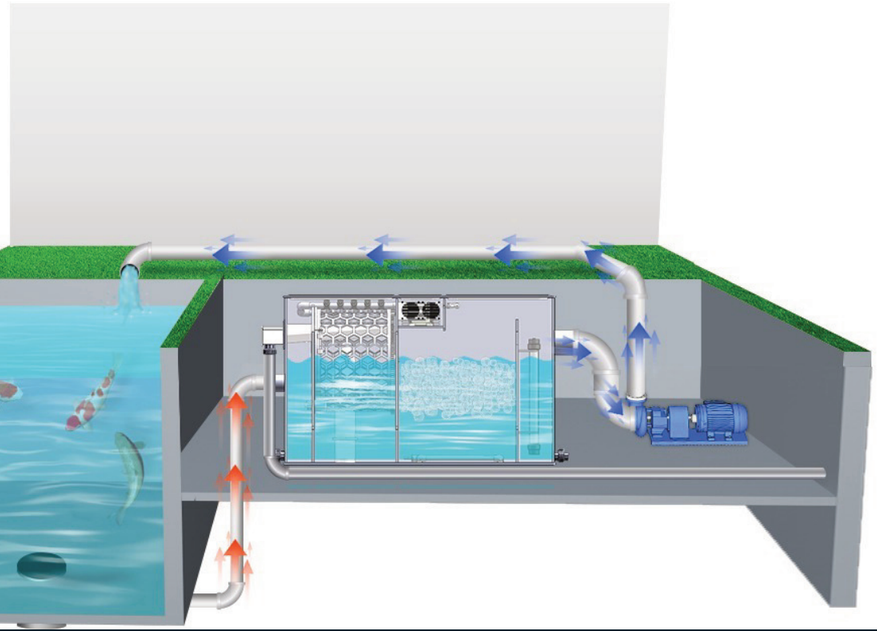


# Gravitation System

Your Combi Drum Filter will perform equally well in a Gravitation set-up with a few minor modifications.Place the drum filter on a solid surface that is completely level. Set the drum so the top of the max level line is even with the static water level of the pond (pump off).
By setting the water level at this height you use the most surface area of the screen in the drum filter.

You can then connect the inlet pipe (bottom drain) of the pond, followed by the outlet pipe. The outlet pipe can be connected directly to the pump. It is recommended to set a stop valve on the inlet and outlet pipes. Depending on your setup, you can use a check valve instead of a valve on the outlet side.

For installation on gravity-basis, sufficient water feed is very important for proper functioning of the filter!
There is a risk of the rinse pump running dry and a very frequent activation of the rinse cycle if there is insufficient water supply, due to an incorrectly installed system.

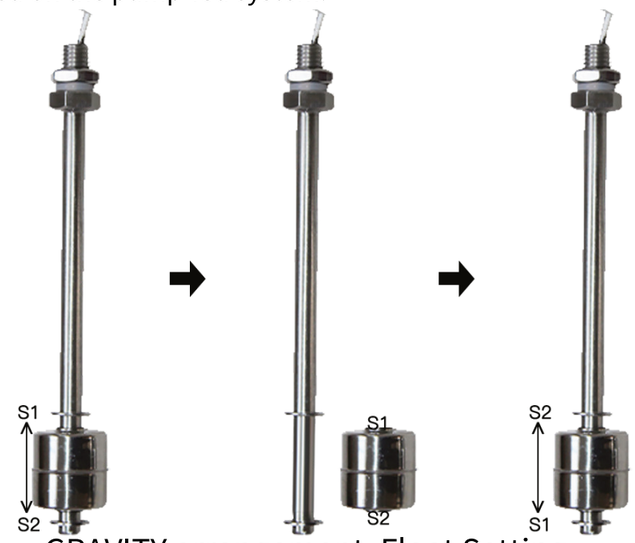


PLEASE NOTE: If you do not use automatic water re-fill it is very important that the water level in the pond does not get too low. If the water level gets too low it is possible that the water cannot touch the sensor anymore. In that case the CDF will not stop flushing and the control unit will switch to failure mode after a certain time to protect the RDF and the components (motor, trafo, jet pump etc.)

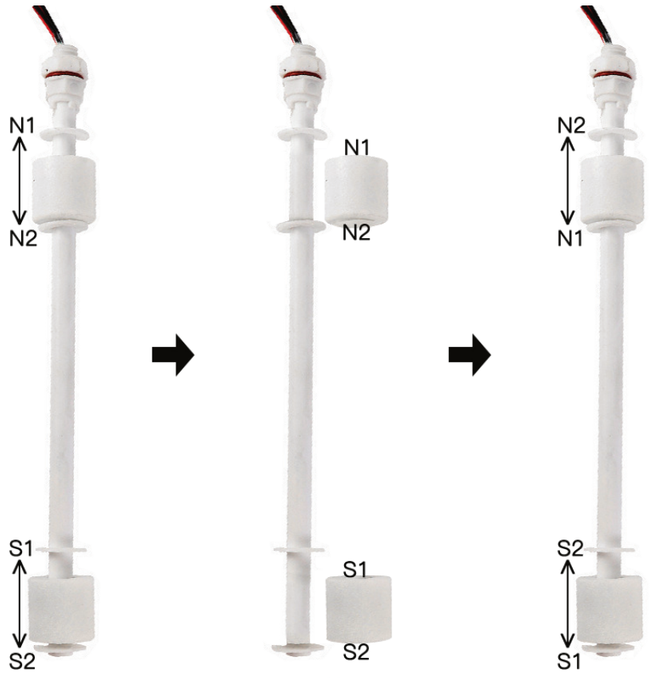
# Please note:

1. It is important to note that if you are using a gravity system, your water level gauge needs to be mounted into the Drum filter chamber, not the Collection Chamber.

2. The float must be installed in reverse, because the circuit here is to work reversely. We need to remove the floats and swap them up and down, cause our float factory default Settings are based on the pump-fed system.

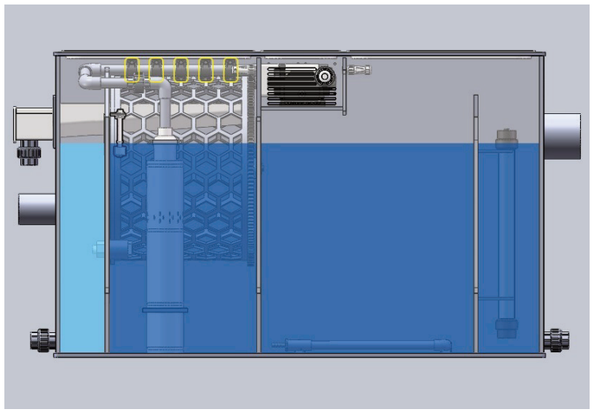



GRAVITY arrangement, Float Setting

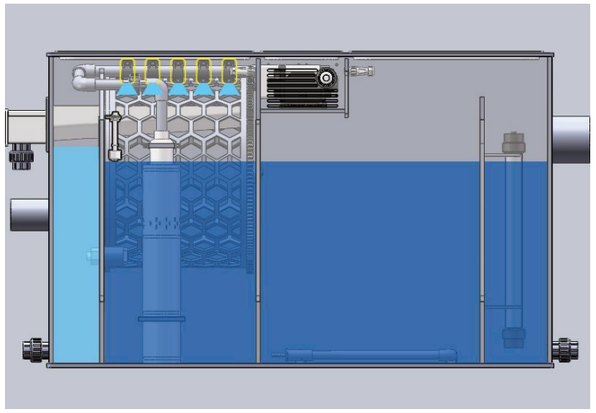





# Probe:

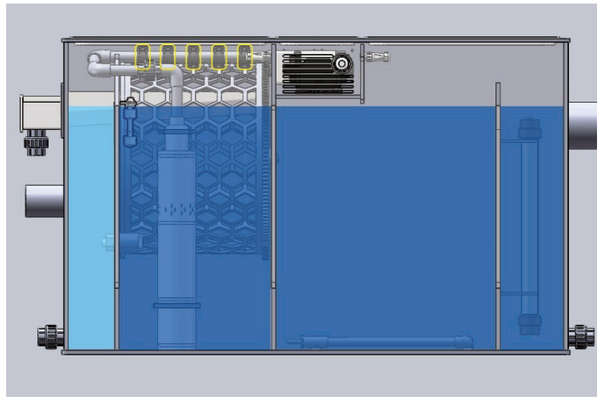


GRAVITY arrangement, not flush situation, probe touches water

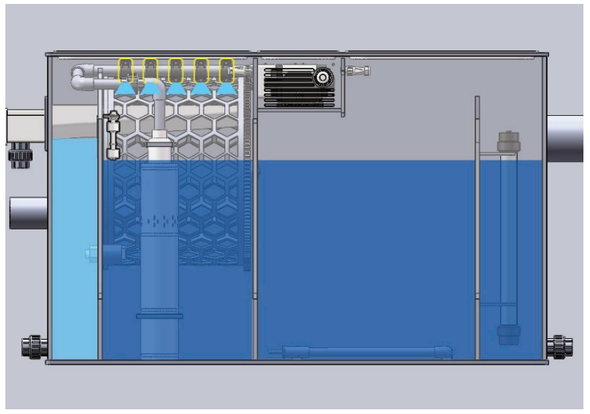


GRAVITY arrangement, flush situation, probe is dry

# Double Float Probe:



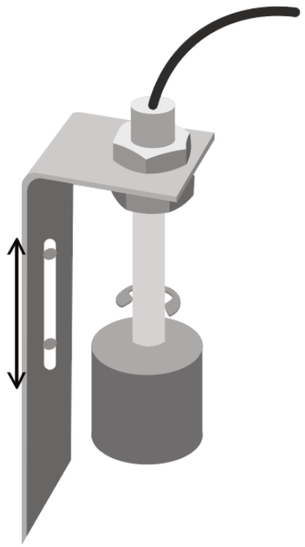
GRAVITY arrangement, not flush situation, dual float probe, flushing is turned off when both floats are on float



GRAVITY arrangement, flush situation, dual float probes, flushing turned on when both floats are in the down state

*Light blue is unfiltered water.*
*DarkBlue is filtered water.*

# Probe Setting



The position of the detector can be adjusted by turning the screw

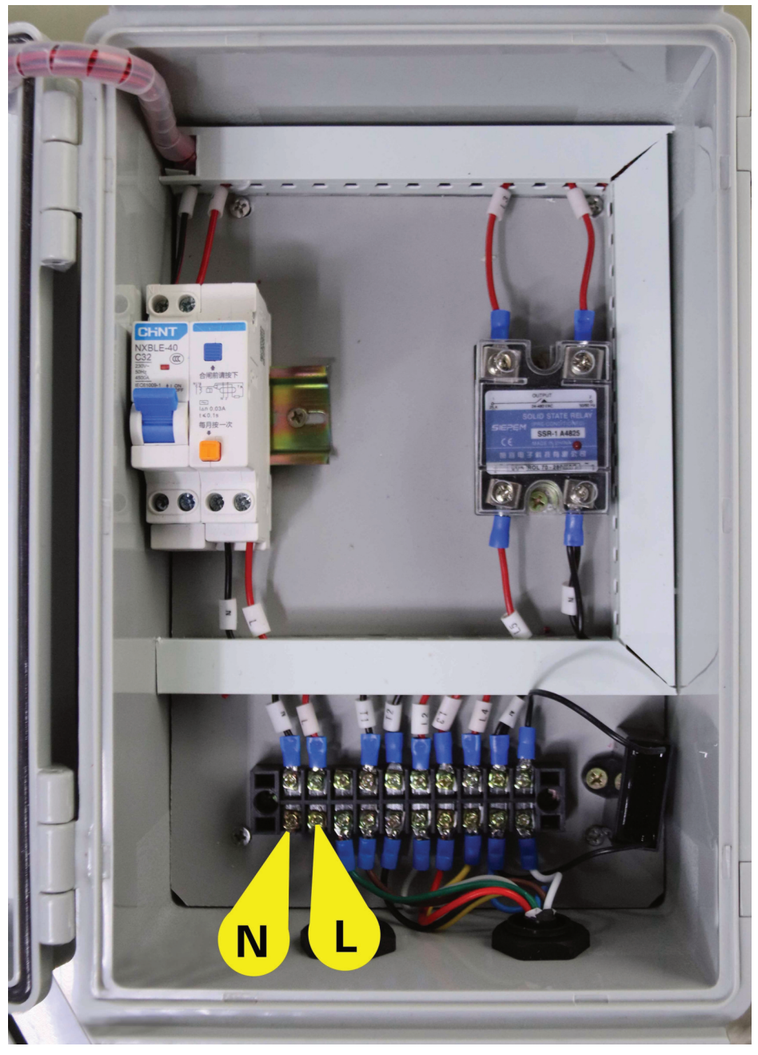


# Electric Control Box

## inside the control unit

N:Nature  Wire
L:Line Wire

PLEASE NOTE: The wiring of the electric control box may differ due to the model, if you need to reorganize the wiring, please do it under the operation of a professional after contacting your supplier.




Normal Control Box Inside


Normal Control Box Outside


Timer Control Box Outside


Keys above and below the numbers:
"+" means increase the values
"-" means rduction the values

Keys above and below the letters:
Switch hour and minute units

*The figure on the left, for example, means that every 2 hours backwash works for 30 seconds

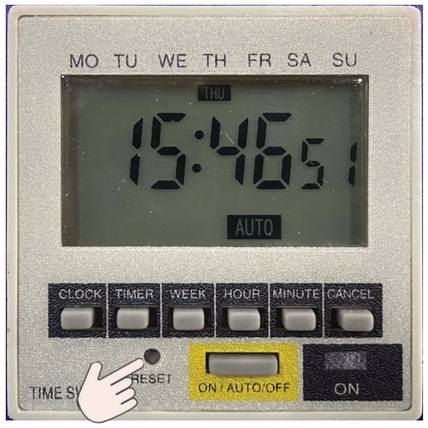


# UV Timmer Setting

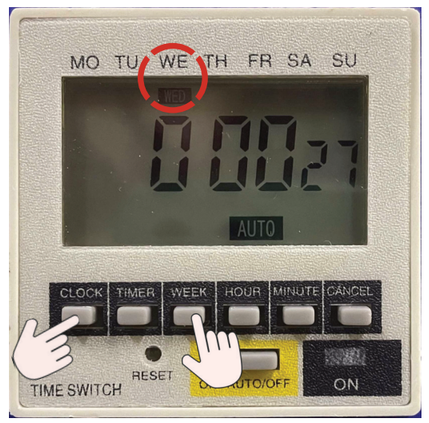
## 1.Set local time

When you receive the machine, the time here needs to be set to your local time.

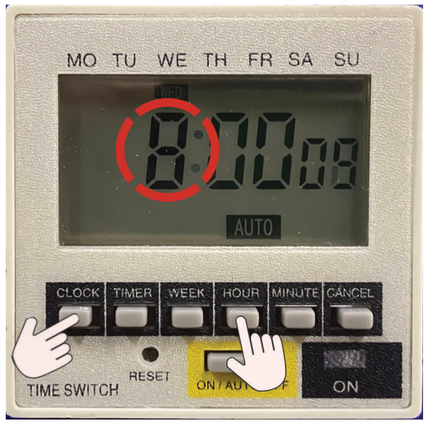
For example, your current local time is 8:15am on Wednesday. Follow me to set it.



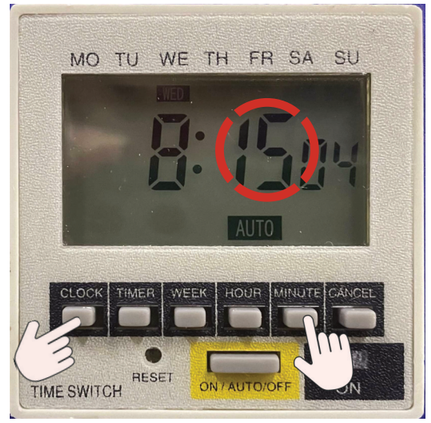

1.Using a small toothpick, click the "RESET" button




2.Press and hold the "CLOCK" button, then click the "WEEK" button to set to "WED".

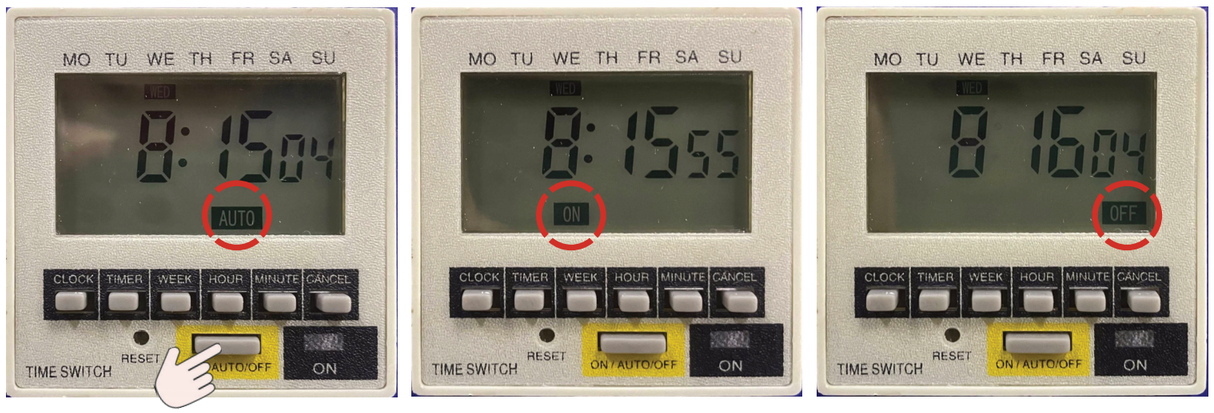



3.Continue to press and hold the "CLOCK" button and click on the "HOUR" button to set to 8am.




4.Continue to press and hold the "CLOCK" button and click on the MINUTE" button to set to 8:15am.

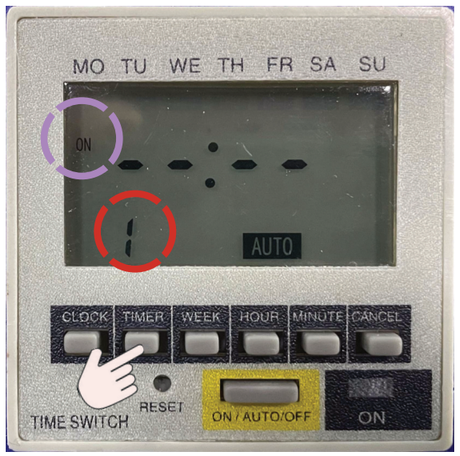
## 2. Set the work timmer



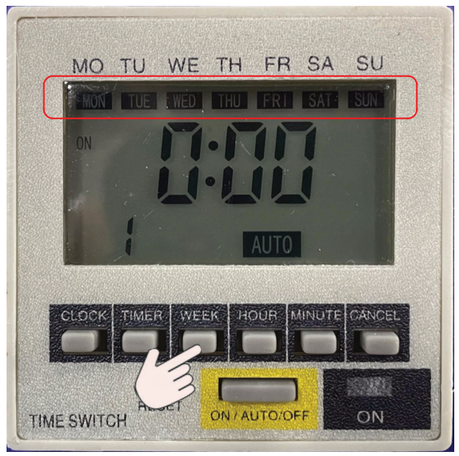

A B C

Press ON/AUTO/OFF to switch the operating status of the timer, "ON" means the UV lamp is always operating." OFF" means the UV lamp is always off. "AUTO" requires us to set the working time group, up to eight groups of time can be set, the following will explain how to set the timer working time group.

## 3. Set the timmer group

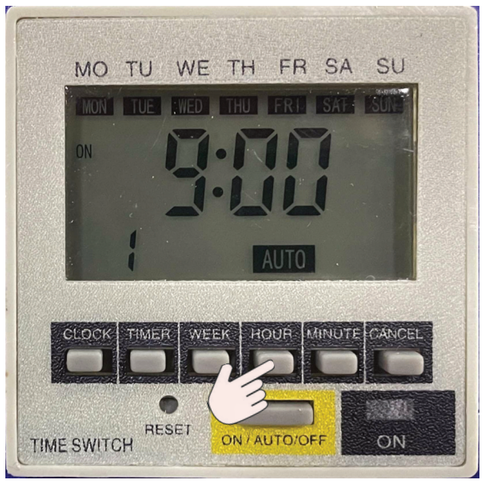



1.Click on "TIMMER" to set the timing group, the blue circle represents the start time, the red represents the time group, the current "1" is the first group.

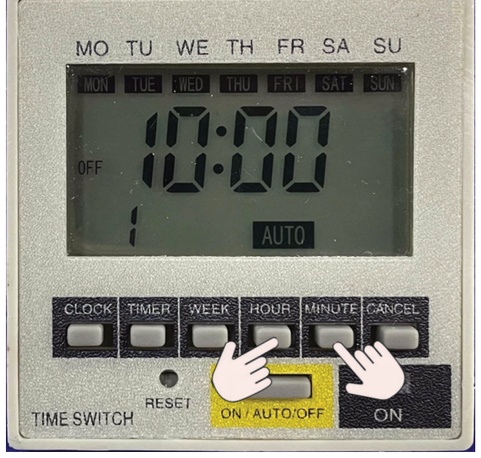



2. Click on "WEEK" to set the specific day of the week on which the UV lamp will run. The current red circle means that all 7 days of the week are working days.

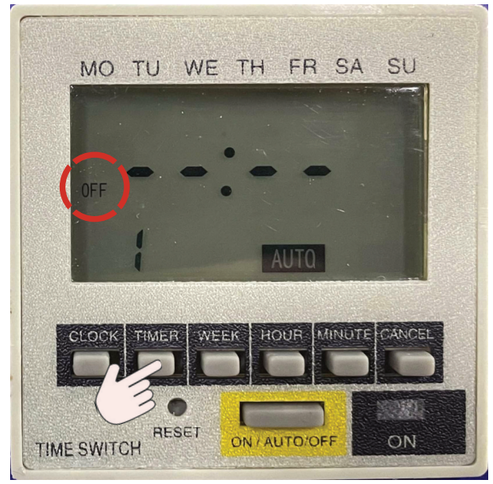




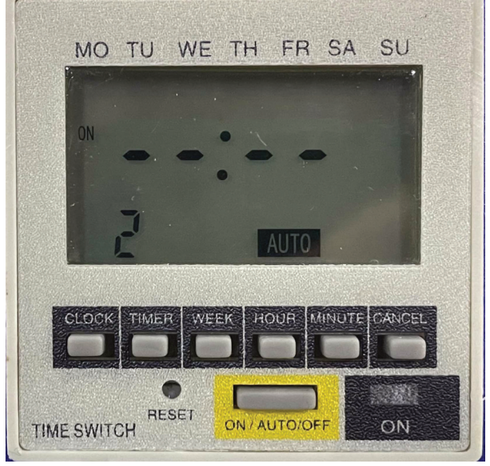

3.Click on "HOUR" and "MINUTE" to set the start time of the first group on the weekday. The picture shows that in the "1" timed group, UV Lamp will turn on at 9am Monday to Sunday.




5. Click on "HOUR" and "MINUTE" to set the end time. This means that in the "1" timer group, the UV light will stop working at 10am Monday to Sunday.




4.Next, click on "TIMER" to set the stop time for the first group. The red circle shows "OFF" for the stop time.




6. Click on "TIMMER" to set the "2" timer group, which is the same as the "1" group, so that you can set different time periods.Up to 8 timer groups can be set.

# Maintenance

When performing cleaning and maintenance, always take the following measures:

• Always switch off the power supply and secure it from being accidentally switched back on before you come into contact with the water or perform any maintenance work on the system.

• Check the correct functioning of the float every month.

• Remove any coarse waste (such as algae) on the inside of the drain.

• Perform a manual rinse every month and check whether the nozzles perform good spraying. A nozzle may get clogged or calcified. The rinse pump may also perform less pressure. Clean the nozzles if necessary.

• Clean the sieve element with a strong acid(hydrochloric acid 30-35%). After a while, biofilm and calcium deposits may arise, as a result of which the rinse frequency will strongly increase. Observe the safety regulations during cleaning with acids. Wear protective clothing and safety goggles.

• Clean the water level meter electrodes.

• Check the bio filter chamber aeration is normal once a week

# Trouble shooting

## 1. Drum does not flush

Check that the float switch is free from debris.
Remove the float switch and turn it upside down, the drum should flush. If it doesn’ t , then the float switch may be faulty.

Perform a manual flush by pressing the button on the control panel.
If it doesn’ t flush, again check the float switch.

If the float switch, ensure that the water level is at the float mark,
switch the unit back on after ten minutes, wait for the dry run to complete and then see if the drum starts to work. If all of these checks fail, then please contact your Dealer.

The Floats can be removed for cleaning and maintenance
Please note which way the magnet is before removing and replace the same way



## 2. Poor pressure from spray nozzles

Check that the nozzles are not clogged.

Check that the water supply to the flushing pump is adequate.

Check for leaks on the pipework.

It may be that the flushing pump may need replacing, if it is still under guarantee, then contact supplier for a replacement as per the guarantee.

## 3.Water overflows from the filter

Check the water flow into the filter, can not exceed of the Max water flow of the filter

Check the water outlet if install well, the water must goes out from the water outlet of filter smoothly

## 4.UV lights non stop

Check the timer(there is a digital timer on the control cabinet, we suggest that set the UV working 2 hours everyday)

setting the right working time on digital timer

## 5. The auto back wash non stop

Check the drum filter chamber water level, if the drum filter chamber is seriously blocked, backwashing can not remove some sediment will cause the drum filter has been rotating. The solution is to disconnect the combi drum filter power supply, drain the water from the tank sewage outlet(11), and clean the drum filter.

Check that the float switch is free from debris.

# Installation Probe

## Double Float Style

| | |
|---|---|
| Switch voltage: | 220VC/140Vac-Max |
| Switch current: | 0.5ADC/0.35Aac-Mac |
| Penetration voltage: | 250Vdc-Min |
| Penetration current: | 1.2Adc-Min |
| Resistance values: | 0.1Ω-Max |
| Working temperature: | -20℃—80℃ |
| Working pressure: | ＜0.4Mpa |

In a gravity system, your probe needs to be installed in the back water level after the drum is filtered, when both floats fall on the lower card to start backwashing, until the upper float floats up and touches the upper card to stop backwashing, both when the first float falls the pump will not start until the lower float also falls to start backwashing, so you set the backwashing working water level based on the lower float.

In the Pump-Fed System, you install the probe before the drum filter and start the backwash when both floats rise to the top card, and stop the backwash when the top float falls to the bottom card. So in the Pump-Fed System you need the top float to set the water level for backwashing.



## Single Float + Timer Style

When you customize a Rotary Drum Filter with a timer, we usually use the Single Float + Timer Style.

| | |
|---|---|
| Switch voltage: | 220VC/220Vac-Max |
| Energized current: | 1A-Max |
| Switching current: | 0.5A-Max |
| Insulation resistance: | ＞10Ω |
| Output contact: | 10W/50W |
| Working temperature: | -20℃—120℃ |
| Working pressure: | ＜0.9Mpa |

In the Gravity System, a single float still needs to be installed in the section after the microfilter filtration, and the backwash pump will work when the water level is below the float position. In the Pump-Fed System, it needs to be installed before the drum filtration and the backwash pump operates when the water level reaches the single float position.