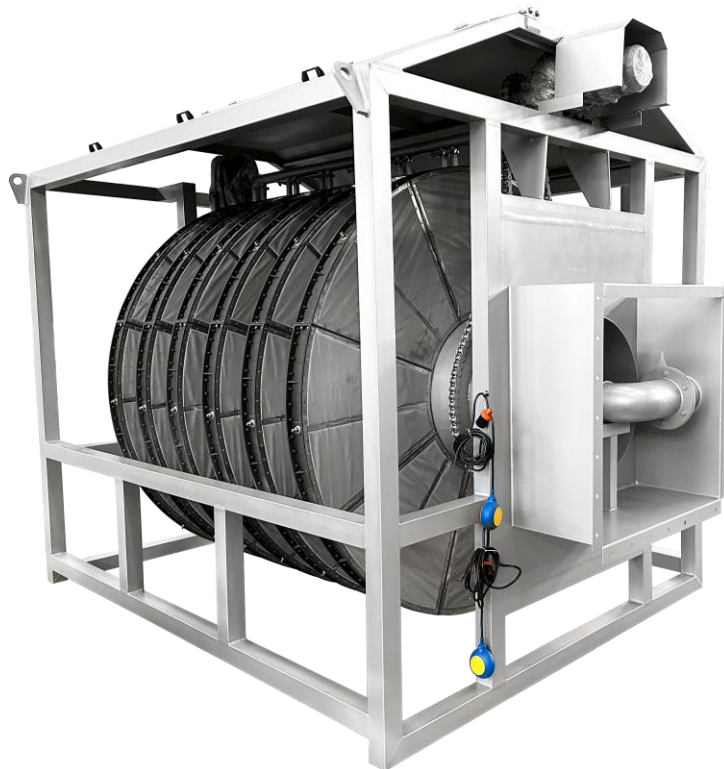


⚠ Read this manual before operation



## **DISC MEMBRANE FILTER INSTRUCTION MANUAL**



**YIXING TEIO INTERNATIONAL TRADE CO.,LTD.**  

---

**SPECIALIZED IN WATER TREATMENT SOLUTIONS**

## CATALOGUE

1. OVERVIEW.....	1
2. WORKING PRINCIPLE.....	1
3. EQUIPMENT STRUCTURE.....	1-3
4. EQUIPMENT FEATURES.....	3
5. APPLICATION AREAS.....	3
6. PRECAUTIONS.....	3-4
7. EQUIPMENT OPERATION.....	4-5
8. MAINTENANCE.....	5
9. TROUBLESHOOTING.....	5

## 1. Overview

Disc membrane filter is mainly used for further purification of surface water, deep treatment of sewage, reuse of reclaimed water, etc. In the process of deep treatment of sewage, disc membrane filter is installed after the secondary sedimentation tank of the conventional water treatment system. It is mainly used to remove solids, and remove some phosphorus, turbidity, COD in combination with chemical agents. It is used to improve the discharge standard of the sewage from Class B to Class A, so as to meet the discharge standards.

## 2. Working Principle

Disc membrane filter is a kind of rotary drum filter. The filter is composed of a series of horizontally mounted, rotatable filter discs, which are installed on the central pipe shaft. The maximum water immersion volume can reach 60%. The sewage flows from the inside to the outside through the stainless steel mesh, and the filtered clean water flows out from the end of the machine.

The sewage flows into the center of the hollow shaft of the filter by gravity and enters the inner side of the filter discs arranged on the hollow shaft. On both sides of each filter disc are high-strength and dense stainless steel filter cloths. After the sewage flowed out from the inner side of the filter cloth to the outside, the clean water will flow into the clean water tank, while the fine particles will accumulate on the inner side of the filter cloth. When particles in the sewage gradually form a sludge layer inside the filter cloth and accumulate to a certain extent, the water level will rise, triggering the liquid level sensor to send a signal. The PLC control system will start the drum to rotate and start backwashing.

Backwash process: the nozzles located at the top of the discs will spray high-pressure water to wash away the accumulated particles inside the filter cloths. The backwash water is the filtered water from the filter itself. The particles flushed away will be discharged through the discharge outlet under the action of gravity.

During the backwashing process, the filtration of the sewage is uninterrupted and continuous.

## 3. Equipment Structure

### 3.1 Central Water Inlet and Distribution Device

Disc membrane filter is equipped with a central water inlet and distribution device, including: central water inlet pipe, water distribution drum, linkage gear, linkage chain, rotating bearings, sealing elements, etc.

There is a collection and discharge tank located at the upper end of the water distribution drum. The sewage will be sent to the filter discs by the water distribution drum.

### 3.2 Filter Disc

Each filter disc is composed of independent and detachable fan-shaped filter plates, each of which is composed of filter cloth installed on a stainless steel frame. The assembly structure of filter cloth and fan-shaped frame allows each fan-shaped plate to be easily removed and replaced, thereby facilitating the replacement of filter cloth.

When filtering, the equipment works in a static state without moving. The filter system can effectively collect particles on the inner side of the filter cloth and flush them by high pressure water. The filtered water can be reused for backwashing.

### *3.3 Drive System*

The drive system is a variable frequency drive device, including: gearbox, drive gear, drive chain and chain cover. The power supply of the drive motor is three-phase AC.

### *3.4 Backwash System*

#### *3.4.1 Backwash System Components*

The backwash system includes: backwash water pump, backwash filter, flushing water pipe and nozzle system, backwash solenoid valve, dirt collection tank, and sludge discharge pipe.

#### *3.4.2 Backwash System Function*

The function of the backwash system is to use a pump to extract filtered water and use a high-pressure umbrella-shaped spray system to flush the filter cloth from the outside to the inside, thereby removing the particles accumulated on the inner surface of the filter cloth. The frequency and time of backwashing are adjustable. During the backwashing process, the filtration of the sewage will not be affected.

The backwash system automatically backwashes or timed backwashes the filter cloth according to the head loss. It can also be backwashed manually.

### *3.5 Frame and Mounting Accessories*

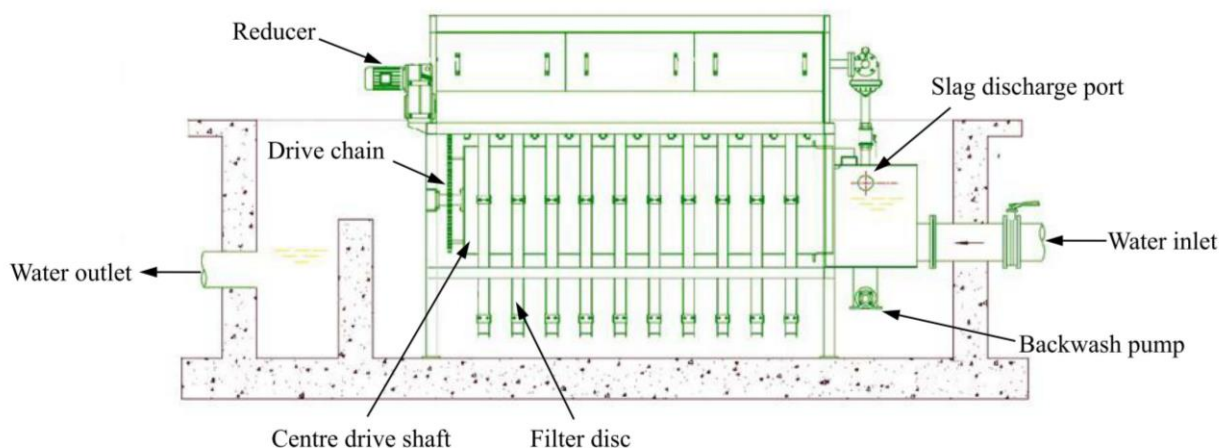
The frame and mounting accessories are all made of 304 stainless steel.

### *3.6 Instrument*

The equipment is equipped with liquid level sensors.

### *3.7 Control System*

The equipment can be controlled automatically by PLC. It can be also operated manually.



#### 4. Equipment Features

- (1) Compact structure, few auxiliary equipment, low investment.
- (2) Modular design and installation, simple and convenient operation and maintenance.
- (3) Low equipment idle rate, low installed power, low operating cost.
- (4) Good and stable effluent quality.
- (5) Automatic operation, strong shock resistance.

#### 5. Application Areas

- (1) Papermaking industry.
- (2) Preparation of circulating water, flushing water, and industrial water.
- (3) Preparation of process water for food and chemical industries.
- (4) Solid-liquid separation in synthetic materials industry.
- (5) Urban sewage treatment plants.

#### 6. Precautions

- (1) It is necessary to ensure that the feed rate is in accordance with the designed processing capacity. It is strictly forbidden to operate with excessive feed rate, because excessive feed rate will cause the sewage overflow beyond the weir and directly be discharged without treatment, which will affect the effluent water quality.
- (2) It is strictly forbidden to feed heavily turbid sewage that does not meet the water inlet requirements to disc membrane filter. Otherwise, the filter cloth will be impacted, affecting the treatment effect and service life of the equipment.

- (3) It is strictly forbidden to feed discarded plastic bags, related paper scraps and other debris to disc membrane filter, so as to prevent the debris from entering the sludge pump and damaging the pump or causing blockage.
- (4) In order to ensure the filtering effect of the equipment, the outside of the filter cloth needs to be cleaned once every 3 months. The inside of the filter cloth needs to be flushed once every 6 months. At the same time, it is necessary to clean the sludge or debris in dead corners such as the pool wall.
- (5) When cleaning the filter cloth, turn on the sludge pump and pay attention to the water level at the bottom of the equipment. When the water level is too low, turn off the sludge pump and valve in time.

## **7. Equipment Operation**

- (1) After the equipment is installed, check again whether the tightness of the bolts and chains meets the requirements, check whether the pipeline connections between the supporting devices are correct, whether the cables between the devices are installed correctly, whether the sealing gaskets at the valve and pipeline connections are all in readiness. Clean and sweep the debris in the disc membrane filter again. After confirming that everything is OK, proceed to the next step.
- (2) Connect the main power supply of the control cabinet, close all air switches, check whether the LCD screen displays normally, click the manual button to start manual operation mode. Click the electric valve start button to check whether each valve opens and closes normally. Start each backwash pump in sequence to check whether the pump's rotating direction is correct. Start the drive reducer to check whether the filter's rotating direction is correct. Check whether the reducer's lubricating oil is filled in place (usually halfway up the oil window), and check whether the liquid level transmitter displays normally. If any fault occurs during the inspection, troubleshoot it.
- (3) Open the sewage inlet valve, and slowly feed the sewage to the disc membrane filter, so as to avoid a sudden impact of large amount of incoming water on the filter disc. When the water level is above the probe of the liquid level gauge, check whether the value displayed by the gauge increases with the increase of water level. If there is no response, it means that the signal line is connected incorrectly. Please refer to the control circuit diagram for adjustment. When the water level exceeds half of the filter, check whether there is any leakage. If so, stop the water supply and repair it.
- (4) When the water level exceeds half of the filter, speed up the water inflow until it reaches the designed processing capacity.
- (5) After running in manual mode for 3~5 minutes, click the automatic operation button to start the automatic operation mode.

- (6) Observe for 24 hours. If the equipment runs well and no faults occur, it means that the equipment can be put into use.

## 8. Maintenance

- (1) When starting the filter, it is necessary to check whether the phase sequence of control cabinet is correct and ensure that rotating direction of the motor is correct.
- (2) At starting after long time of stop using, it is necessary to check whether the line voltage meets the equipment requirements. After starting, check whether the reducer, electric valve and backwash pump are running normally.
- (3) Check every three months whether the lubricating oil of the reducer is normal, whether the mechanical seal of the backwash pump is in good condition, whether the electrical wiring bolts in the control cabinet are loose, etc.
- (4) Although the electrical components and motors of the equipment can reach the protection level for outdoor use, it is still recommended to take appropriate rain and frost protection measures in typhoon, severe cold and freezing weather, so as to ensure the operating efficiency and service life of the equipment.

## 9. Troubleshooting

No.	Faults	Reasons	Solutions
1	The fault light is off but the equipment doesn't operate.	The main switch is not turned on.	Turn on the main switch.
		The selector switch is in the '0' position.	Change the selector switch to 'Manual' or 'Automatic' position.
		The emergency stop button is pressed.	Release the emergency stop button.
		The control fuse is burned out.	Replace the fuse.
2	The fault light is on and the equipment doesn't operate.	The motor protection switch was triggered or the current relay is triggered.	<ul style="list-style-type: none"> <li>• Turn off the main switch.</li> <li>• Check whether there is wood or stone stuck.</li> <li>• After troubleshooting, restart the motor protection switch and press the "Confirm" button.</li> <li>• Turn on the main switch.</li> </ul>
		No current phase.	<ul style="list-style-type: none"> <li>• Check the fuses in the control cabinet.</li> <li>• Check the fuse of the main switch.</li> </ul>
3	The solenoid valve can't be closed.	The solenoid valve is blocked.	Disassemble and clean the solenoid valve.
		The diaphragm in the solenoid valve is damaged.	Replace the diaphragm.



**YIXING TEIO INTERNATIONAL TRADE CO.,LTD.**

---

Add.: NO.198 JUNMA ROAD, QITING STREET, YIXING, JIANGSU, CHINA.

Tel: +86-15995396766

WeChat/WhatsApp/Facebook: +86-15995396766

Email: m15995396766@gmail.com

Web: [www.yxteio.com](http://www.yxteio.com)

P.C.: 214213