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**QEEHUA® PUMP**

# CHEMICAL FILTER Operation manual



**Model: QH/QHF/QHC/QHU/QL**



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GUANGDONG QEEHUA INDUSTRY EQUIPMENT CO.,LTD.

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Thank you for choosing the filter of our company. In order to ensure your safe, long-term and correct operation of the selected product, give full play to the maximum efficiency and extend the service life of the product, please read this manual carefully before using the product.

## I. Description of type characteristics

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# I. Description of type characteristics

## (1) Precision filter - QH series

**QH - 2006 - 1 - F - F - E - C - W - G - A - Z - S**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

- ① Model No.: QH
- ② Cartridge specification: 1001-10 "xlPcs; 1002-10 "x2Pcs; 1004-10 "x4Pcs; 2001-20 "xl Pcs; 2002-20 "x2Pcs; 2004-20 "x4Pcs; 2006-20 "x6Pcs; 2008-20 "x8Pcs; 2012-20 "x12Pcs; 2018-20 "x18Pcs; 3018-30 "x18Pcs
- ③ Pump Power: 045-45W; 065-65W; 180-180W; 260-260W; 1-1 HP; 2-2HP; 3-3HP; 5-5HP
- ④ Filter barrel material: F-PPH; P-PVDF; C-CPVC; U-UPVC
- ⑤ Inlet and outlet form: U-union; F-flange type
- ⑥ Sealing material: E-EPDM; V-FKM
- ⑦ Filter material form: C-cartridge with pressing plate; B-cartridge with lock cap; P-disc paper type; U-bag type
- ⑧ Activated carbon device: W-installation; -No installation
- ⑨ input and output standards: G-GB standard; J-JIS standard
- ⑩ Pump type: A-magnetic pump; B-self-priming pump
- ⑪ Upper cover type: Z-injection molding upper cover; S-solid plate upper cover
- ⑫ S-Standard; N-Non-Standard

## (2) Precision filter - QHF series

**QHF - 10205 - 1 - F - F - E - P - W - G - A - Z - S**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

- ① Model No.: QHF
- ② Disc paper type specification: 10205-φ 205x40Pcs; 20370-φ 370x40Pcs; 30370-φ 370x60Pcs
- ③ Pump Power: 1-1HP; 3-3HP; 5-5HP
- ④ Filter barrel material: F-PPH; P-PVDF
- ⑤ Inlet and outlet form: F-flange; U-union; H-intubation
- ⑥ Sealing material: E-EPDM; V-FKM
- ⑦ Filter material form: B-cartridge lock cap; C-cartridge with pressing plate; P-disc paper type; U-bag type
- ⑧ Activated carbon device: W-installation; O-No installation
- ⑨ Input and output standards: G-GB standard; J-JIS standard
- ⑩ Pump type: A-magnetic pump; B-self-priming pump
- ⑪ Upper cover type: Z-injection molding upper cover; S-solid plate upper cover
- ⑫ S-Standard; N-Non-Standard

## (3) Special filter for electroless plating – QHC series

**QHC - 2006 - 1 - F - F - E - B - F - Z - S**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- ① Model No.: QHC
- ② Cartridge specification: 1004-10 "4Pcs; 2004-20 "x4Pcs; 2006-20 "x6Pcs; 2008-20 "x8Pcs; 2012-20 "x12Pcs; 2018-20 "xl 8Pcs
- ③ Pump Power: 1/3-1/3 HP; 1/2-1/2 HP; 1-1HP; 2-2HP; 3-3HP
- ④ Filter barrel material: F-PPH; P-PVDF
- ⑤ Inlet and outlet form: U-union; F-flange; H-Entrance and exit sleeve
- ⑥ Sealing material: E-EPDM; V-FKM
- ⑦ Filter material form: B-cartridge lock cap; U-bag type
- ⑧ Pump material: G-GFRPP; C-CPVC; P-PVDF
- ⑨ Upper cover type: Z-injection molding upper cover; S-solid plate upper cover
- ⑩ S-Standard; N-Non-Standard

## (4) Stainless steel filter – QHU series

**QHU - B - 7 - 20 - 50 - F - 6 - L - S**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Model No.: QHU
- ② Filter material form: B-cartridge lock cap; C-cartridge with pressing plate type
- ③ Number of filtration types: 1-1Pcs; 3-3Pcs; 5-5Pcs; 7-7Pcs; 9-9Pcs; 12-12Pcs; 18-18Pcs; 24-24Pcs
- ④ Cartridge length: 10-10 "; 20-20 "; 30-30 "; 40-40 "
- ⑤ Inlet and outlet caliber: 25-1"; 32-1¼"; 50-2"; 65-2½"; 80-3"
- ⑥ Inlet and outlet specifications: F-flange; S-screw
- ⑦ Filter barrel material: 4-SUS304; 6-SUS316L
- ⑧ L-fixed seat foot; M-movable seat foot
- ⑨ S-Standard; N-Non-Standard

## (5) Precision steel filter-QL series

QL - 2006 - F - F - E - C - G - Z - S  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Model No.: QL
- ② Cartridge specification: 1001-10 "x1 Pcs; 1002-10 "x2Pcs; 1004-10 "x4Pcs; 2001-20 "xl Pcs; 2002-20 "x2Pcs; 2004-20 "x4Pcs; 2006-20 "x6Pcs; 2008-20 "x8Pcs 2012-20 "xl2Pcs; 2018-20 "xl8Pcs; 3018-30 "xl8Pcs
- ③ Filter barrel material: F-PPH; P-PVDF
- ④ Inlet and outlet form: U-union; F-flange type
- ⑤ Sealing material: E-EPDM; V-FKM
- ⑥ Filter material form: C-cartridgecartridge with pressing plate; B-cartridge with lock cap; P-disc paper type; U-bag type
- ⑦ Input and output standards: G-GB standard; J-JIS standard
- ⑧ Upper cover type: Z-injection molding upper cover; S-solid plate upper cover
- ⑨ S-Standard; N-Non-Standard

## II. Installation precautions

1. The pipeline used for a long time must be well supported to prevent the leakage of the connecting part, as well as the vibration and damage of the pipeline during operation.
2. The front end of the inlet piping must be equipped with bottom valve or check valve and filter screen, and its position shall not be close to the air mixing pipe to avoid air inhalation. At the same time, the turning and distance shall be reduced as far as possible, and the caliber of the inlet piping shall not be smaller than that of the pump.
3. If the distance of suction pipeline is long and there are many turns, please install a water injection hole at the suction port, which is controlled by the water injection ball valve. If necessary, add liquid here until the inlet pipeline is filled.
4. Try to avoid installing the machine outdoors. If it is necessary to be outdoors, sunshade shall be installed.
5. Before piping, different pipe fitting materials shall be selected according to the chemical and temperature conditions, so as to meet the actual requirements. For example, PP pipe fittings should be selected for temperatures above 60 °C.
6. When piping, it is noted that there shall be no impurities or debris left in the pipe. If necessary, clean the pipe with clean water.
7. When the inlet pipe is made of soft material, pay attention to its fixation to prevent it from moving or warping. It is suggested that the pipeline in the groove should be made of hard material.

8. The pump shall be installed on the firm horizontal ground and the body shall be vertical and fixed.
9. Protect the service life of the filter. Blocking or hydrogen pressure will cause damage to the main body of the filter. The exhaust hose shall be connected to the liquid tank, and the flow rate of 5cc per minute shall be maintained so that the gas in the filter cartridge can be completely discharged. A filter bag shall be set at the end of the discharge hose to prevent the impurities in the discharged liquid from flowing into the liquid tank.

## III. Operation instructions

1. Before use, check whether the access pipe has been installed properly, and fix the access pipe in the groove so that it is not easy to swing.
2. Open the screw rod of the exhaust valve and inject water. The water enters the pump and the inlet pipe from the water injection cylinder, so that the inlet pipe is completely filled with liquid; or open the handle of the upper cover to remove the upper cover, and inject the water from the filter cylinder, so that the inlet pipe is completely filled with liquid.
3. Before starting the motor, check whether the use voltage and motor voltage are correct to prevent errors.
4. Before starting the motor, lock the water injection valve and then open the screw of the exhaust valve to discharge the gas from the conduit.
5. Put the liquid in the water injection bucket through the water injection valve into the pump. Lock the water injection valve after there is no liquid in the water injection bucket.
6. Before using the filter, check whether the fixed seat of the pressure gauge is filled with water or oil. Please fill up the water and then lock the pressure gauge to keep its accuracy.
7. After the above operations are completed, start the pump motor and the machine starts to run. Pay attention to whether the operation direction is correct. If the running direction is wrong, the liquid cannot be discharged, please change the two-phase power supply to change the running direction.
8. Before starting the power supply, check whether the inlet and outlet pipelines are correctly selected. For example: whether the inlet and outlet valves are opened, whether the flow path is correct, whether the liquid in the liquid tank is normal, and whether the pipeline is damaged.
9. When operating liquid in dangerous environment, it is required to wear protective clothing, face shield and safety shoes and socks.
10. Check all kinds of protection switches. For example: whether the liquid switch and liquid level in the tank is normal, and whether the power protection switch is in the normal operation position.

## IV. Maintenance and repair

### 1. Precautions before maintenance and repair

1. The connected power shall be turned off.
2. Drain the liquid remaining in the pump body and close the inlet and outlet valves.
3. Maintenance personnel shall wear protective clothing, face shield, safety gloves and footwear.

4. Note that if the installation height of the liquid tank and the filter is too different, there will be siphon phenomenon to prevent the loss of the liquid.

## 2. Maintenance and repair

### Filter material

#### Analysis on cleaning filter material

Visual inspection method - check the liquid volume at the outlet of the filter, and remove the filter material for cleaning when the flow is slow.

Pressure gauge detection method - the pressure situation indicated by the pressure gauge shall be cleaned within the scope specified in the attached table.

#### Maintenance method of filter material

1. Immerse the filter element and filter bag in HCL solution with a concentration of about 5%. After 3-5 hours, soak them in clean water, and then take them out for drying.
2. Wash the filter material by using clean water to remove the dirt.
3. It is forbidden to clean filter element and filter bag by using brush.

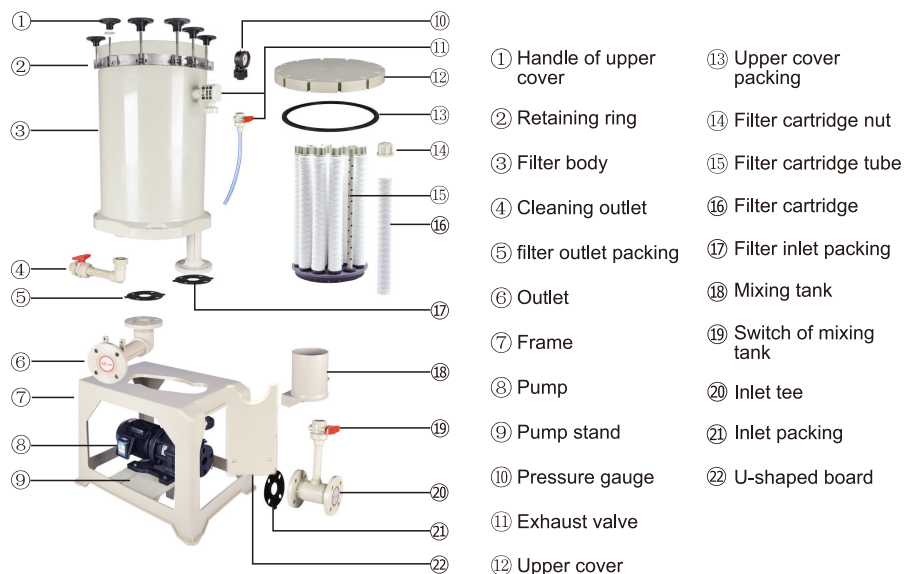
#### Analysis on replacing filter material

If the cleaned filter material is put into the filter bucket for further use, the pressure rises quickly after the filter is started, which means that the pores of the filter material have been mostly blocked and have lost the use value. Considering this case, filter material should be replaced immediately to maintain the filtering effect.

### Filter body

#### Removal method of fixed filter material with lock cap of filter element

Please refer to the appendix for the internal structure and parts drawing of filter element with locking cap:



1. Lock the handle of the upper cover in the clockwise direction, and disassemble it in the counterclockwise direction.
2. Before opening the upper cover, please open the screw rod of the exhaust valve so that the air in the filter bucket can be discharged.
3. After opening the upper cover, the filter element can be seen. There is a nut on the top of each filter element, which can be removed in the counterclockwise direction.
4. Remove the nut and lift it up to take out the filter element. After cleaning or replacing the filter element, reinstall and lock it according to the above removal method, and then continue to use it.

#### Removal method of filter material with filter element pressing plate

1. Lock the knob of the upper cover in the clockwise direction, and disassemble it in the counterclockwise direction.
2. Before opening the upper cover, please open the screw rod of the exhaust valve so that the air in the filter bucket can be discharged.
3. After opening the upper cover, rotate the fixing nut of the central column in the counterclockwise direction to remove it.
4. After the fixed nut of the central column is removed, the pressing plate can be removed by lifting it upward. The filter element can be removed.
5. The filter material is composed of filter element, gasket on filter element and upper cushion spring, which can be disassembled after being taken out. After cleaning or replacing the filter element, install it according to the above removal method, and lock the fixing nut of the central column and upper cover to continue to use.

## V. Troubleshooting

Situation	Causes	Handling method
Poor filtering effect.	<ol style="list-style-type: none"> <li>1. The filter element is not well sealed, the nuts of upper cover and pressing plate are not locked, and the filter bag is not installed properly.</li> <li>2. There are residual sundries in the filter bucket, which have not been cleaned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the position of each part and lock the pressing plate.</li> <li>2. When cleaning the filter material, pour the clean water into the filter bucket and remove the residue.</li> </ol>
There is no liquid at the filter outlet, and the pressure is very high during operation.	The filter material is blocked or the outlet pipe is blocked. (e.g. valve is not open)	Clean or replace the filter material, check the outlet pipeline and open the inlet and outlet valve.
After the filter material is cleaned and then installed for use, there is still little liquid out and the pressure is very high	The pore of filter bag of filter element has been blocked and sundries cannot be removed.	All filter materials shall be replaced.

Fault situation	Fault cause	processing method
There is no liquid at the filter outlet, and there is no filtration pressure.	1. The impeller of the pump is blocked by impurities. 2. Pump fails. 3. The inlet pipe inhales air or is blocked. 4. The inlet valve is not open.	1. Disassemble the pump to remove the sundries. 2. Repair and inspection. 3. Check the inlet pipeline. 4. Open the inlet valve.
There is little liquid out and gas mixed in.	1. The pump inlet inhales gas. 2. The air pipe in the liquid tank is too close to the inlet pipe of the filter, or the inlet pipe is loose and inhales gas.	1. Check whether the inlet pipeline is deflated. The inlet part shall not be too close to the air pipe to avoid air inhalation. 2. Check and fix the pipeline.
Pump leakage.	Idling-induced damage.	Replace the damaged parts with new ones.
Motor burns out.	1. The pump sucks in sundries, which are stuck on the impeller. 2. Single phase operation.	1. Take out the sundries and rewind the motor. 2. Install overload switch to prevent overload and coil damage. 3. Check the power switch.
No action of pressure gauge.	1. The seal between pressure gauge and pressure fixing seat is poor. 2. The pressure gauge is damaged.	1. Remove the pressure gauge and install it after winding the check belt. 2. Replace the pressure gauge.
Inaccurate indication of pressure gauge.	1. Whether the diaphragm of the fixed seat of the pressure gauge is full of liquid. 2. Whether the diaphragm is deformed or the material is aged. Replace the diaphragm. 3. The pressure line is poor.	1. Remove the pressure gauge and add clean water. 2. Replace the diaphragm of the pressure gauge. 3. Replace the pressure gauge.
Slight leakage on the upper cover of the filter.	1. Whether the O-ring on the upper cover of the filter is clean. 2. The O-ring of upper cover is damaged or the material is hardened.	1. Clean the sealing gasket. 2. Replace the O-ring of upper cover. 3. Clean the surface of the filter bucket.
The outlet flow of the filter is very small, while filter material is not blocked.	1. The pump runs in the wrong direction. 2. The impeller of the pump is blocked. 3. The inlet bottom valve is blocked by sundries.	1. Correct the wiring method. 2. Remove sundries.

## VI. Attentions

1. The installation site shall be flat or the filter shall be placed on a stable shelf, and the pipe fittings at the inlet and outlet shall be fixed to prevent the pipe fittings from being damaged.
2. Be familiar with the operation of the machine before studying the problem. Please read the installation of each object in the manual, and there are sufficient instructions to help confirmation and installation, so as to understand the standard operating procedures of each component.
3. Please do not change the chemistry of pumping arbitrarily when using, because different chemical substances may mix and produce various chemical changes, or even trigger high heat to damage the body and parts. Please contact our company for chemical cooperation.
4. Any misuse, such as overpressure, self-modified parts, chemical property mismatch, or use of damaged parts, etc., may cause dangerous situations. Please obey the safety warning.
5. Most of the general electroplating solutions contain hydrogen, so hydrogen will be produced during electrolysis. Hydrogen is easy to remain in the filter bucket, which will accumulate when it is not used for a long time, resulting in pressure increase and even hydrogen explosion in the filter bucket. Therefore, the exhaust valve of the filter cartridge should be vented every day to discharge hydrogen. If it is not used for a long time, the exhaust valve shall be opened to prevent hydrogen residue.
6. For the use of the filter, when starting the power supply, check whether the flow at the outlet is normal, and clean the filter materials on time. The liquid in the pump will produce high temperature when it is idling, which will make the liquid in the pump vaporized, thus generating vapor pressure in the filter bucket. In addition, hydrogen is separated from the liquid and the internal pressure of the filter bucket increases. If the pressure is too high, the filter bucket will burst. Please be sure to check whether the outlet valve of the filter is open and whether the pump is dry running, or it will damage the pump and filter.
7. Please use the filter during working hours. When no one is operating at night, turn off the power supply to prevent the filter material from blocking and no one stops or cleans it during the use at night, thus causing the idle damage of the filter.
8. Try to avoid installing the machine outdoors. Under the long-term sunlight, the plastic of the filter bucket is aging gradually, which affects its service life.
9. The pressure during operation shall not be higher than 1.5kg/cm<sup>2</sup>.

