

Operation Manual of  
Diatomite Filter  
(Model: JXDF200-2-8)

四川觉晓科技有限公司  
JX FILTRATION(CHINA) CO., LTD

**JX FILTRATION (CHINA) Co., Ltd.** was founded in 2001. We specialize in filter of various industries. Due to our best quality, the most competitive price and professional service, our products are highly praised by our customer from our customer both at home and abroad.

## **Our products**

Sieve Bend Screen Filter

Automatic Back-flushing Filter

Sand Filter

Diatomite Filter

Active Carbon Filter

Micro screen Filter

Rotary Drum Screen

## **I. Feature and structure**

1. This machine comprises: pump, tank, screen pipe, observation mirror, vent valve, sight glass, pipe and valve. All the material which directly contact with the liquid adopts 304 stainless steel. All the closure head adopts flange type.

2. This vertical diatomite feature has obvious advantage than cotton cake filter and horizontal filter:

Save 95% energy

Reduce 90% of wine loss

Save 2/3 of cost

Save 3/4 of workers

3. Shorter time of diatomite adhesion, the liquid can be clear in one minute. Fast and convenient.

4. Low using cost: the diatomite which adhered on the screen pipe will be automatically fall off when changing the diatomite. And the diatomite can be discharged by open the valve, no need to disassemble the filter. The screen pipe can be washed repeatedly without replacement.

5. The wine or beverage filtered by this machine is clear and remains the original flavor and has the feature of non-toxic, no suspended solids, no precipitation.

6. Good filtering performance. The diatomite, supported by the screen pipe, will formed a filtering layer on the surface which will not deformed by the pipe pressure or electric pressure.

7. High filtering efficiency. When filtering, each screen pipe has separated passage. So it has low filtering resistance and the consumption of the diatomite is less.



**schematic drawing of screen pipe**

## II. Application

This filter is widely used in liquor, wine, low-alcohol wine, rice wine, soy sauce, vinegar, and beverage industries. The clarify degree after filtering can reach 99.8%.

## III. Main technical parameter

Model	Screen pipe Qty.	Inlet/ou tlet mm	Capacity T/H	Working pressure (MPa)	Using amount of diatomite (KG)
JXDF200-2-8	8	DN25-32	2-5	0.1-0.3	1-3

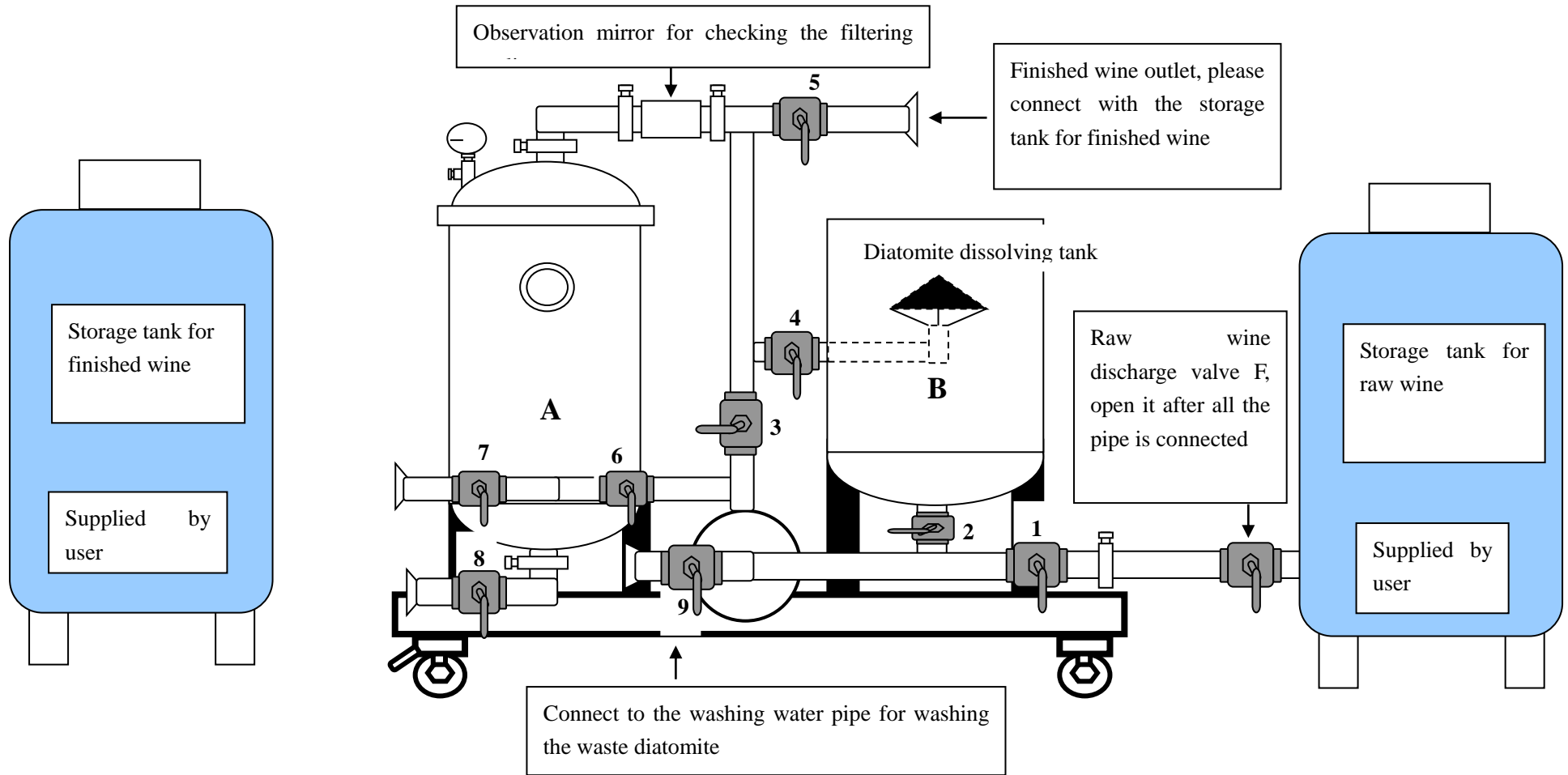
## IV. Operation method

### Step 1

**Picture 1:** schematic drawing of pipe connection before installation

(Remark: The black valve indicates the close state and the white valve indicates the open state)

1. Connect the 380V power wire, then adjust the motor and make sure it rotates to the right way
2. Connect the pipe of inlet and outlet.



Vertical diatomite filter

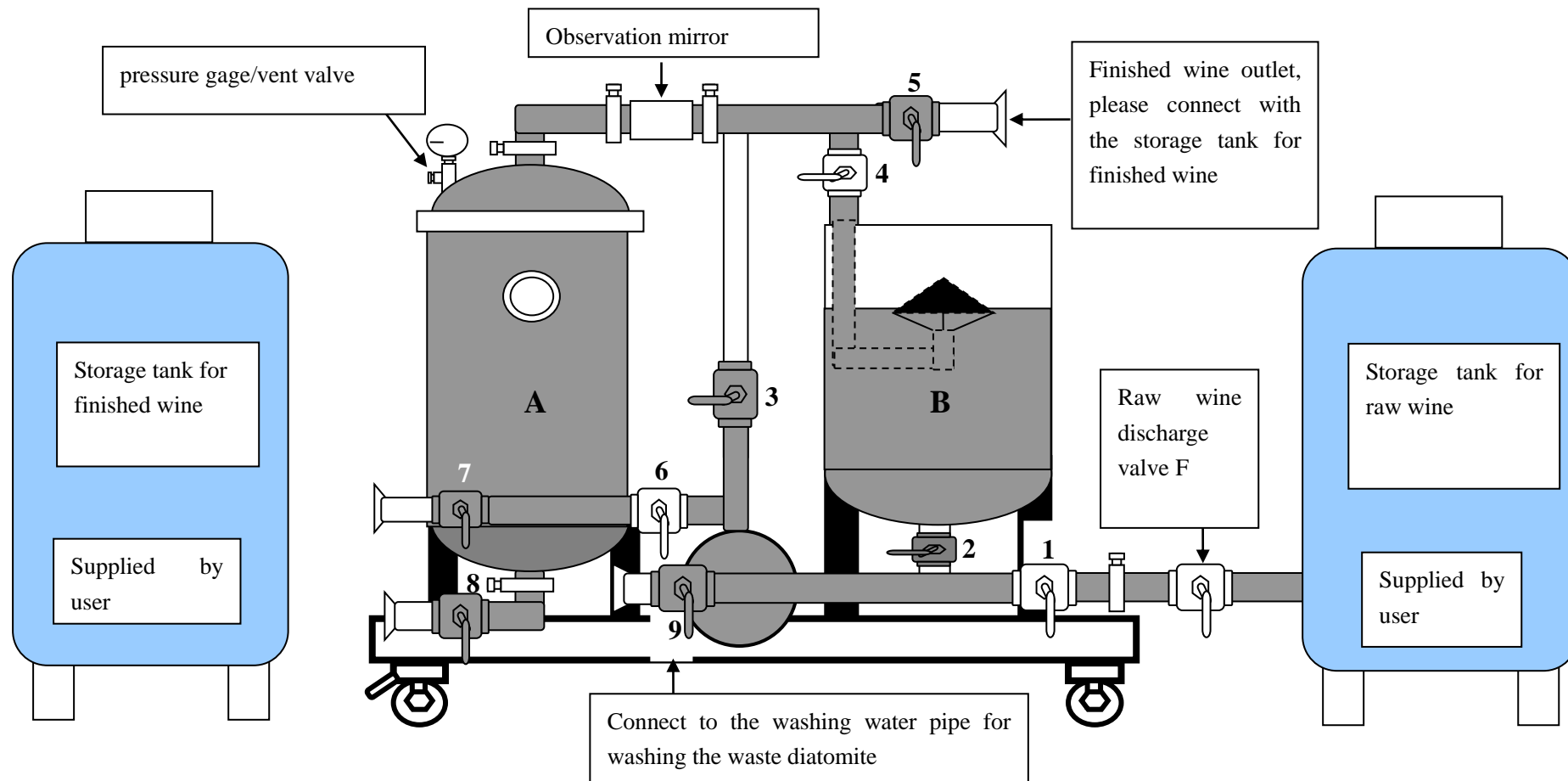
Picture 1

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### Step 2: Preparation for diatomite adhesion

Picture 2: (Remark: The black valve indicates the close state and the white valve indicates the open state)

1. Open valve No. F, 1, 5, 3, open the pump and fill tank A and B with raw wine. Then vent the air until the wine is coming from the vent valve and then close the vent valve. Fill the raw wine in tank B with the wine level reaches the tapered cover. See picture 2.
2. When the wine is almost reaches the level of the tapered cover, open valve No. 2 to let the wine cover the tapered cover. Then close No. 1 valve quickly. See picture 2.



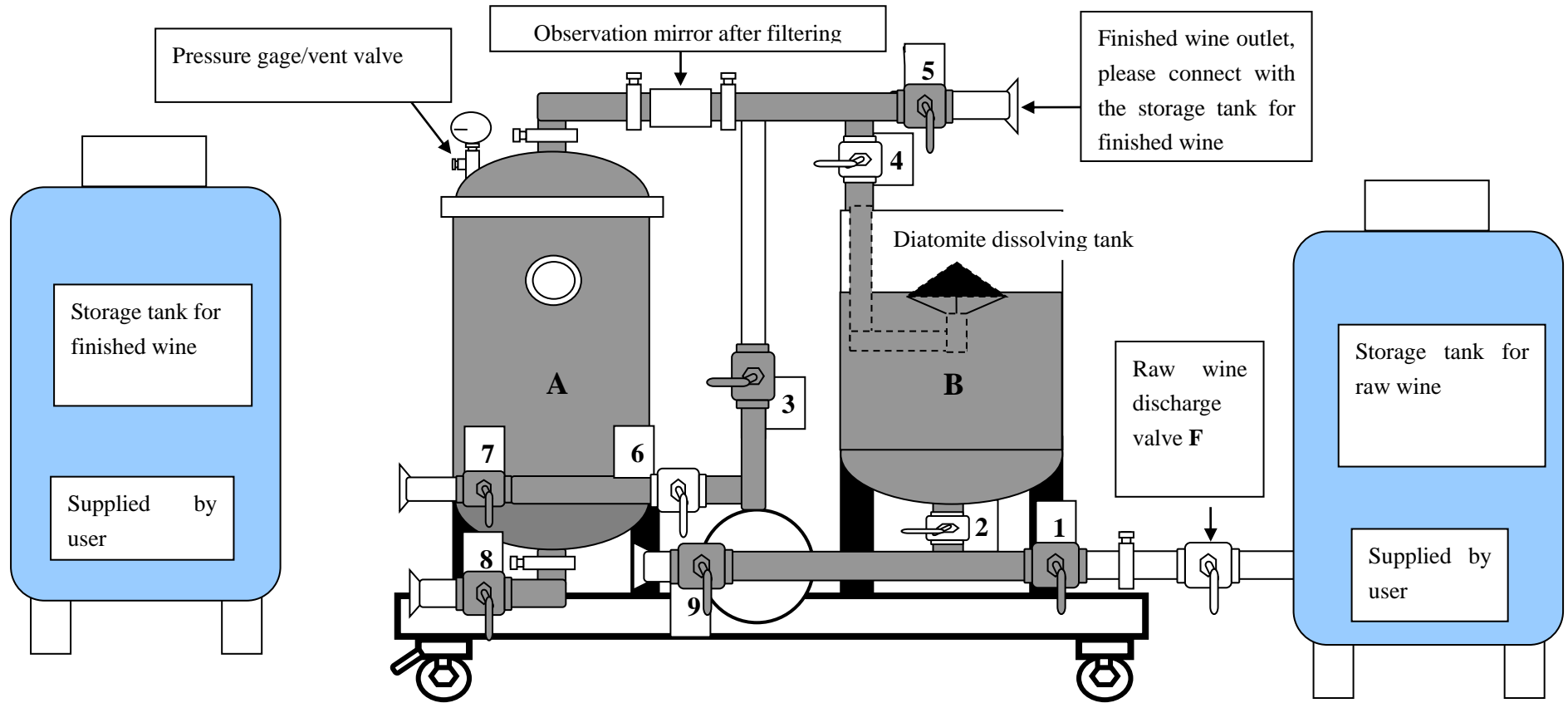
Vertical diatomite filter

Picture 2

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### Step 3: Operation of diatomite adhesion on the screen pipe

Picture 3: 1. Now the wine is circulating in tank A and B. At this time, fill 0.5-1kg diatomite into tank B, then the diatomite can be circulating in tank A and B (if the wine has much impurities and high viscosity, then mix half of the coarse-grained diatomite and fine-grained diatomite and then put the mixture in tank B). Wait for the circulation until the mirror is clear which indicates the diatomite has adhered on the screen pipe and then the normal filtration of the wine begins.



Vertical diatomite filter

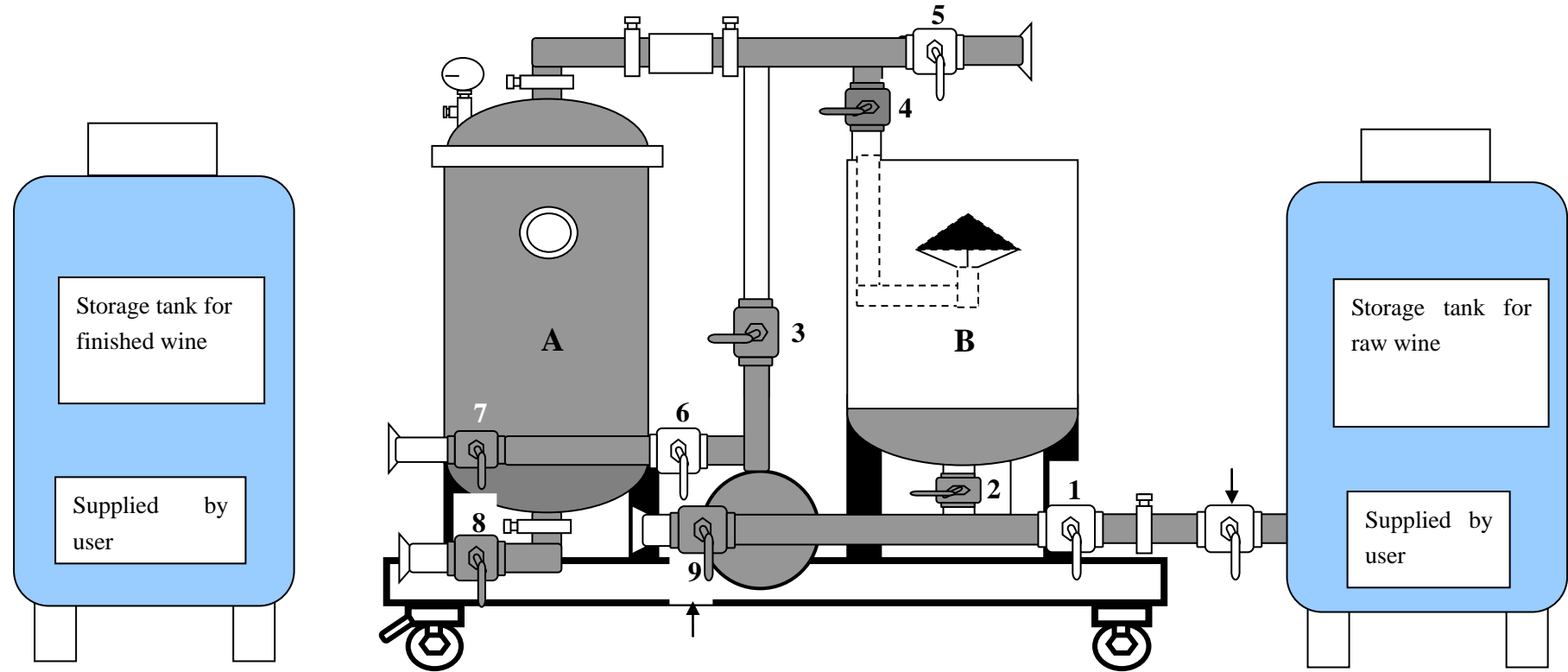
Picture 3

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**Step 4: Operation of normal filtration process after adhesion**

**Picture 4:** 1. When the normal filtration begins, open valve No.5 and then open No. 1. When the wine in tank B is almost pump out, close valve No. 4 and No.2.

**Notice:** If valve No.2 can't be closed in time, the pump will suck air so as to influence the filtering effect and may cause the drop of the adhered diatomite. If this happens, recirculating the wine and adhere the diatomite again.



**Vertical diatomite filter**

**Picture 4**

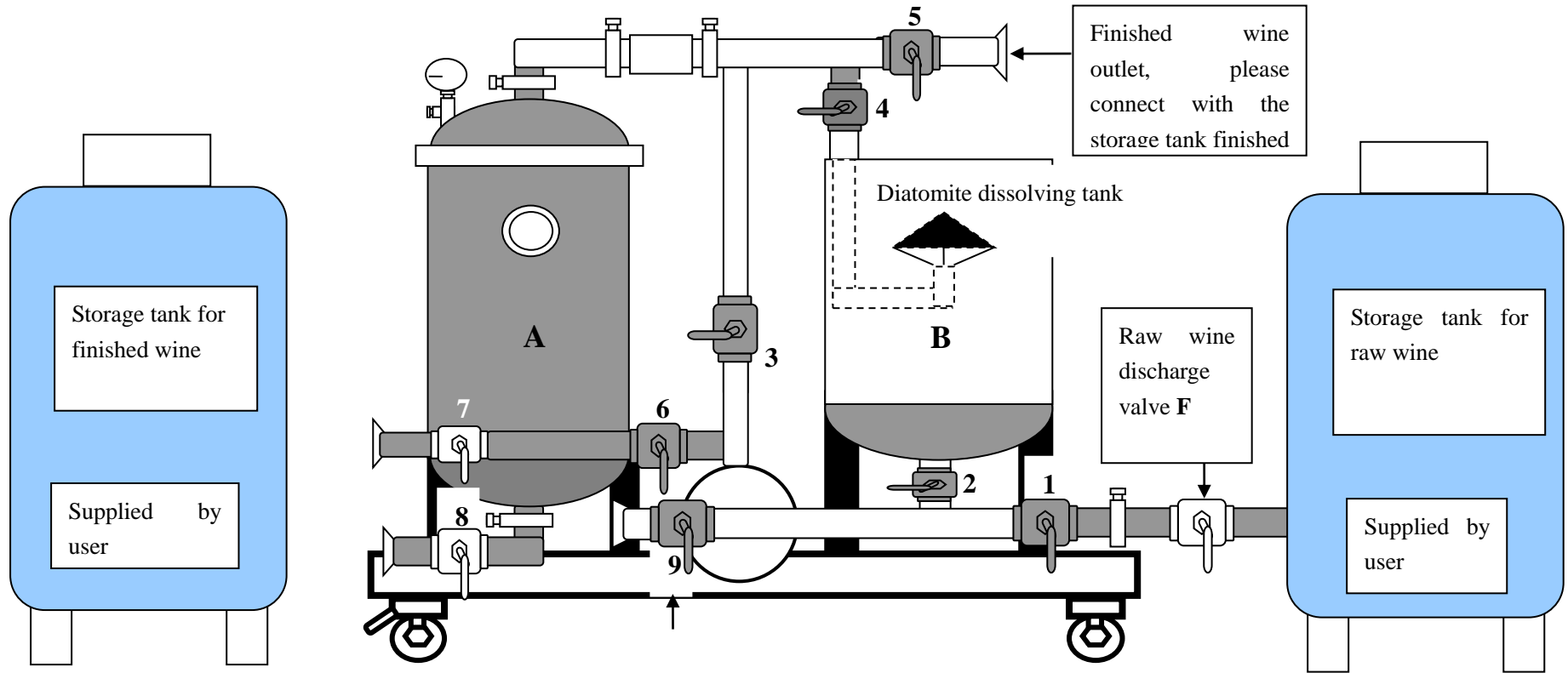
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**Step 1 for cleaning: Cleaning operation**

Picture 5: Discharge method of waste diatomite

Stop the operation of pump and closed valve N0.1 and No. 5. After 3-10 minutes, open valve No.7 first (open the vent valve at the same time), when no liquid come out from valve No. 7, open valve No.8 to discharge out all the raw wine (some diatomite liquid may flow out, put it in the vessel to stand until the diatomite precipitates at the bottom of the vessel. Then pull out the liquid and fill in tank B for circulating when the next operation)



**Vertical diatomite filter**

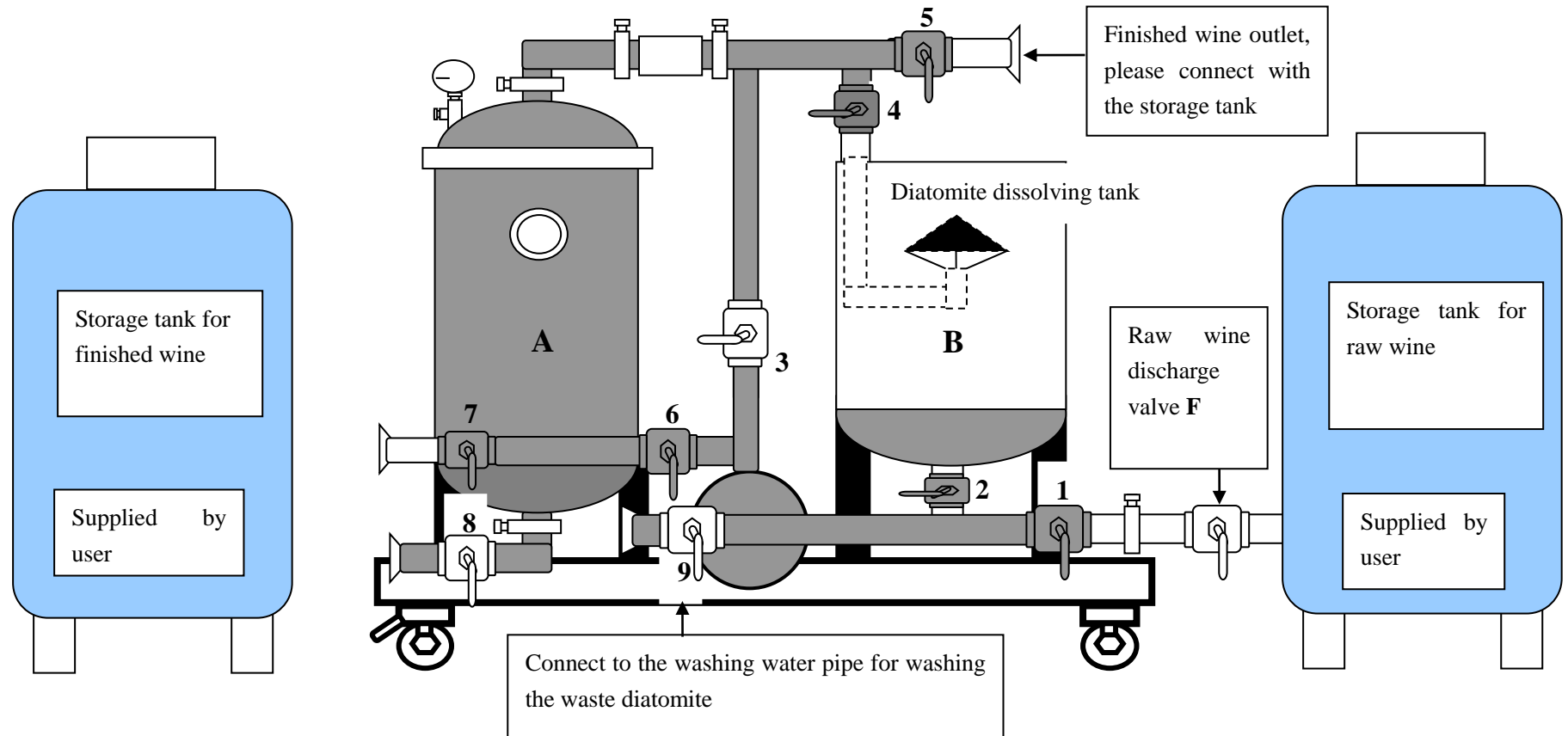
**Picture 4**

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**Step 1 for cleaning: Flushing step 1**

Picture 6: Back flushing method 1:

Open valve No.9 which has already connected to the water pipe, then using the water to backwash, then the waste diatomite can be washed out. Open valve No. 9, 3 and 8(all other valve is closed) and then open the pump to backwash. When backwashing, stop 30-60 seconds after backwashing for 10-30 seconds.

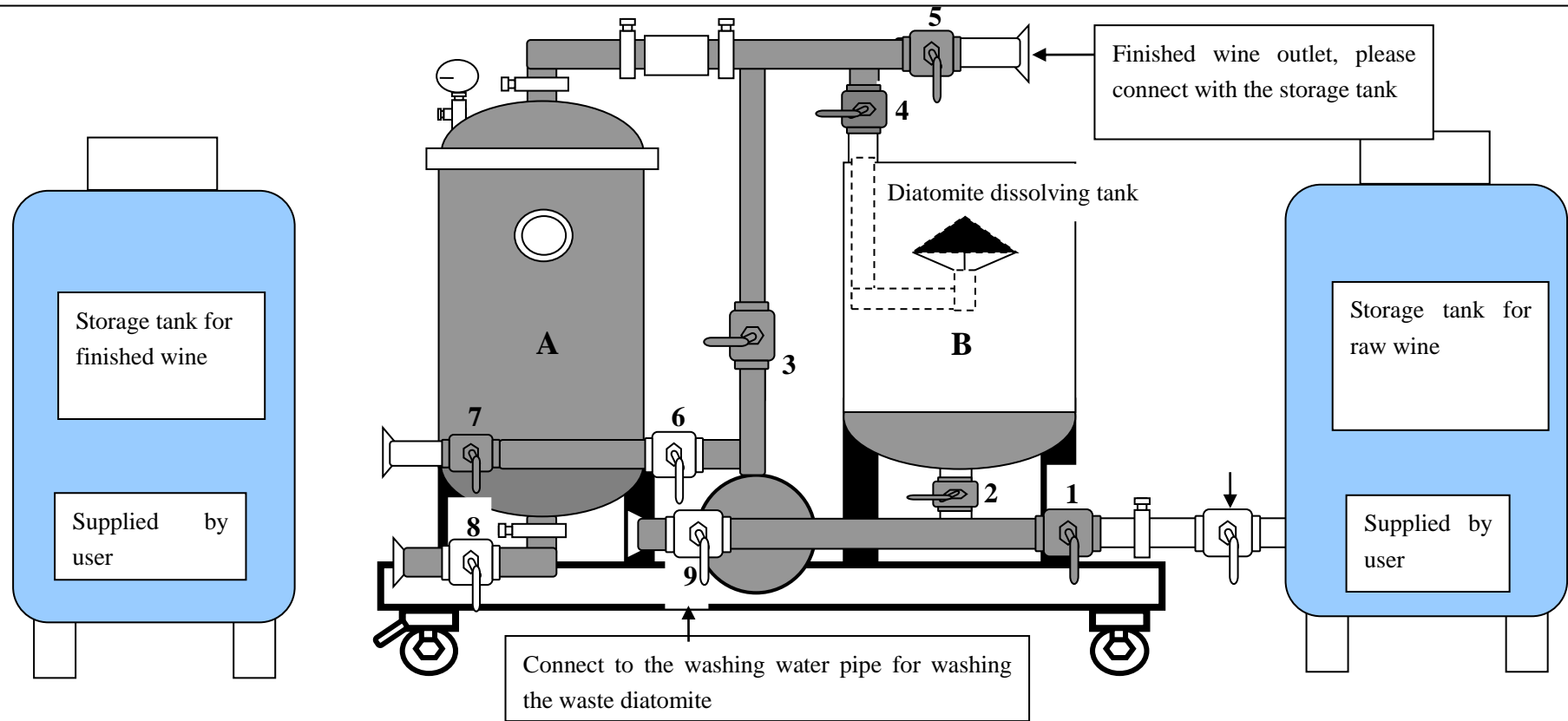


**Vertical diatomite filter**      **Picture 6**      *JX FILTRATION(CHINA)CO., LTD*

**Step 1 for cleaning: Flushing step 2**

Picture 7: Backwashing method 2:

Operating method 2 after method 1 makes the backwashing effect better and more thorough. This method is needed if the waste diatomite stays in the tank too long. Open valve NO.9, then using the water to backwash, then the waste diatomite can be washed out. Open valve No. 9, 6 and 8 and then open the pump to backwash for 30-60 minutes. This method can wash out the diatomite which precipitate at the tank bottom. After washing, discharge all the water and then can carry out the diatomite adhesion process. The backwashing time can be decided according to the onsite situation.



**Vertical diatomite filter**

**Picture 7**

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## Remark:

If the shut down time of the machine is too long, the diatomite which precipitates at the tank bottom will influence the filtering effect next time. So the filter must be cleaned after operation. If the discharged diatomite will be used again, then put it in another vessel for storage. And put in it tank B when using the filter next time.

## Performance of the diatomite

Diatomite is a biochemistry sedimentary rocks formed by cell wall of diatoms. The diatomite has countless of small hole and complex hole which has small powder grain degrees with the size of 2-100 Micron and about percent 90 is transmissible. So it has is good chemical stability, high temperature resistance, insolubility and nontoxic. Thus, the diatomite has great filter capacity and can remove the impurities with the size of 1-0.1 micron.

## VI. Problems and Solutions

Problem	Reason	Solution
Filtering quality can't reach requirements	<ol style="list-style-type: none"><li>1. The adding amount of diatomite is less.</li><li>2. Circulating time is too short</li><li>3. Pump is malfunctioned</li><li>4. The air of the filter and inlet/outlet pipe is not discharged</li><li>5. The screen pipe is damaged</li></ol>	<ol style="list-style-type: none"><li>1. Adding more diatomite</li><li>2. Prolong the circulating time</li><li>3. Check the pump and its rotation way before operation</li><li>4. Discharge the air</li><li>5. Replace the screen pipe</li></ol>
Filtration process is too slow	<ol style="list-style-type: none"><li>1. Adding much diatomite</li><li>2. Pressure is low</li><li>3. Filter cake is blocked</li><li>4. The liquid viscosity is too high.</li></ol>	<ol style="list-style-type: none"><li>1. Adding reasonable amount of diatomite</li><li>2. Increase the inlet pressure</li><li>3. Washing the filter in time</li><li>4. Lower the viscosity</li></ol>
Leakage of filter	<ol style="list-style-type: none"><li>1. The seal of the filter is displacement or damaged</li><li>2. The flange screw is loose.</li></ol>	<ol style="list-style-type: none"><li>1. Put the seal in right place or replace it.</li><li>2. Fasten the screw</li></ol>
The pressure of the	<ol style="list-style-type: none"><li>1. The seal of the pump is damaged</li><li>2. The failure of pump motor</li><li>3. The inlet pipe for the motor is too soft.</li><li>4. The inlet pipe is too long</li></ol>	<ol style="list-style-type: none"><li>1. Replace the seal</li><li>2. Fix the motor</li><li>3. Using stainless steel pipe</li><li>4. Shorten the inlet pipe</li></ol>

pump can't reach the requirement		
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