

# Water Purifier LB-31WP



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## 1. Introduction

**Water Purifier LB-31WP** can produce up to 15 liters of purified water per hour under standard condition of 25°C. It can operate under pressures ranging from 0.8 to 5 bar to ensure optimal performance and versatility. Features an LED controller for easy monitoring, displaying operating mode, purification progress, and alerts. It offers an optional 40-liter storage tank for convenient storage of treated water.

## 2. Features

1. Leakage alarm alerts
2. Low water pressure alarm
3. Full water tank alarm alerts
4. Alarm for Supplies Replacement
5. Features multiple operation modes
6. Equipped with pre filter and two activated carbon units

## 3. Specifications

<b>Model No.</b>	<b>LB-31WP</b>
Output (25°C)	15 L/h
Flow Rate	Up to 2 L/min (with pressure tank)
Pure Water Outlet	2 (Manual and automatic control)
Deionized Water Resistivity	13 to 16 $\mu\Omega$ -cm
Deionized Water Bacteria	< 0.1 cfu/ml
Temperature Range	5 to 45°C
Pressure Range	0.8 to 5bar
Water Hardness	< 200ppm
Water Quality Conductivity	< 1500 $\mu$ S/cm
Water Desalination	0.95
Water Recovery	40 to 50%
Water Conductivity	< 5 $\mu$ S/cm
Heavy Metal Ions in Water	< 0.1ppb
Water Particles	> 0.22UM (<1/ml)
Number Of the Pump Power Unit	1
Reverse Osmosis Unit	1× 100GPO
Rear Purification Unit	2 deionized columns
Storage Unit	40L tank (optional)
Power Supply	220V 50Hz
Dimensions	370×180×440 mm
Net Weight	15 kg
Gross Weight	17 kg

## 4. Applications

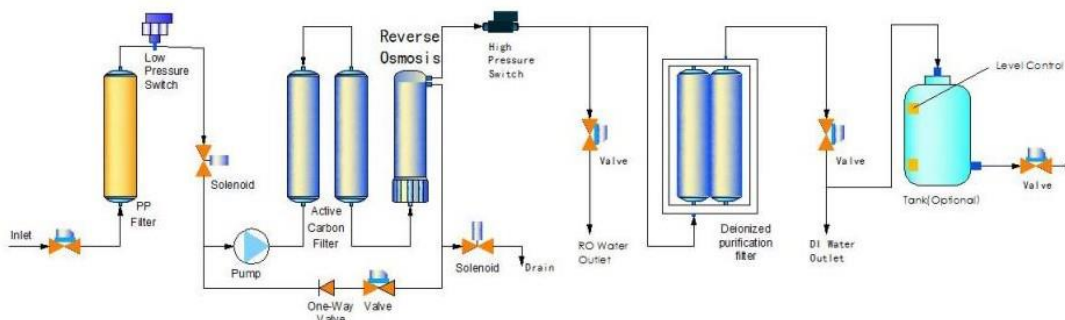
Water purifiers are used to clean water in residential, commercial, industrial, and environmental settings, supporting drinking, manufacturing, healthcare, agriculture, and more, ensuring quality and sustainability.

## 5. Instrument Introduction

### 5.1 System Structure and Theory

This system uses de-salt technology of RO and mix-bed ion exchange to produce pure water and de-ion water, impact structure, and convenient maintenance.

- 1) PC fully automatic control, human-friendly operation display.
- 2) Backlight LED large screen, direct show running status, real-time display washing, producing, water full, water shortage, repair, consumable material replacement, and have a sound-light alarm function.
- 3) Inlay with the program to timely wash RO film, have functions of self-inspection. Water shortage alarm, power shutdown reset, low or high-pressure protection, and waterleakage alarm.
- 4) Plastic case, good appearance, anti-corrosion, insulation safety performance adheres to GLP safety requirement, its characters as below :
- 5) Module block design, fast-connection design, easy installation/maintenance, small roomoccupation, convenient maintenance, and repair.



**Series pure-water machine process flow**

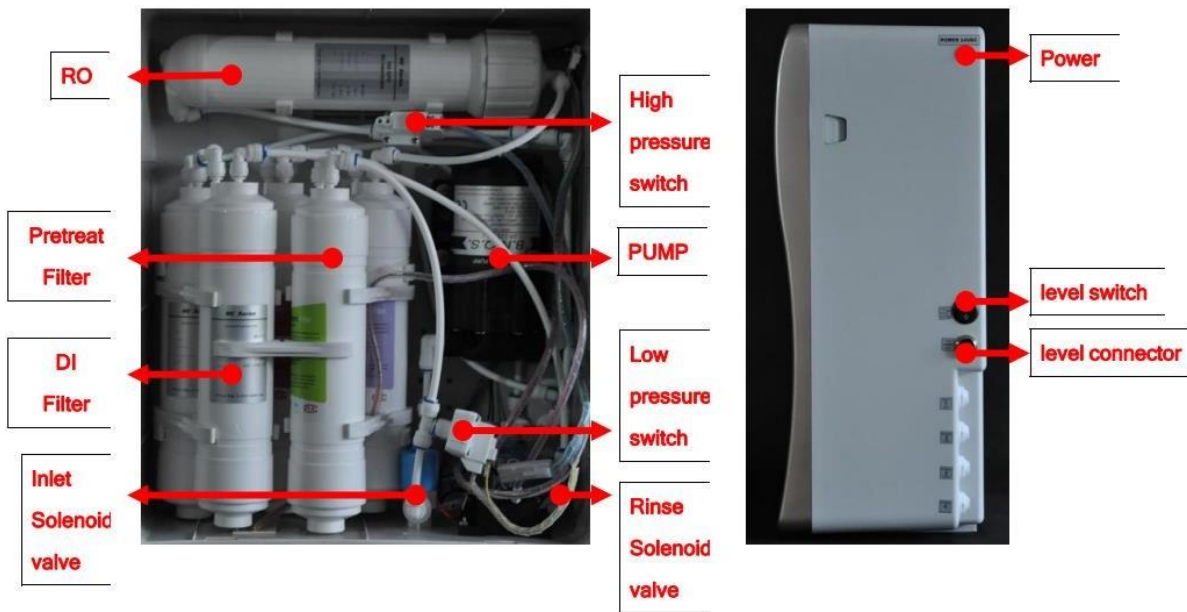
### 5.2 System Circuit Control Theory

This system inducts incoming water pressure through the low-pressure switch, a high-pressure switch inducts pure-water pressure, and then the pressure signal changes to be switch signal, which acts as a control signal to control the pump, incoming water electricity valve and washing water electricity directly.

## 5.3 Machine appearance and component



### Front appearance of Main machine



## 6. Installation

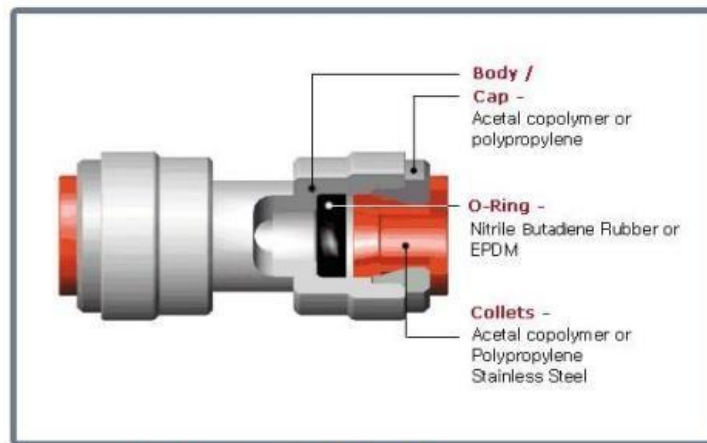
**6.1 Open package confirmation** Please confirm components inside the package: Main machine 1 pc accessories package 1 pc (details see packing list)

### 6.2 Installation Environment

**Requirement of placement:** This system is table style, hanging style, and can be placed on a flat Lab table or fixed to the wall All sides of the system have enough area for the connection of water pipe, electricity power, and replacement consumable materials Machine replace nearby water source, power and water channel.

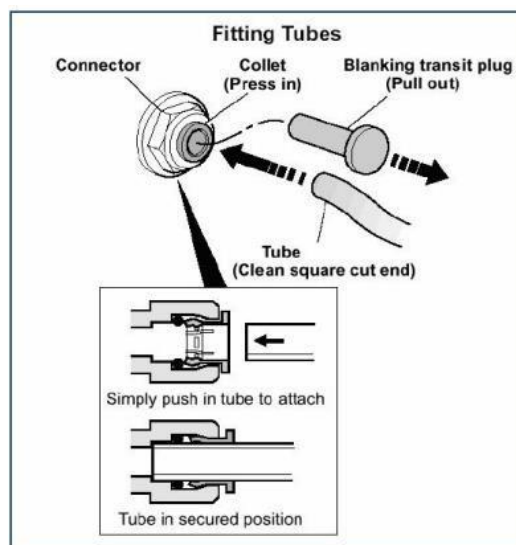
### 6.3 Fast-coupling usage

All connections use NSF-certified fast-coupling, structure as below:



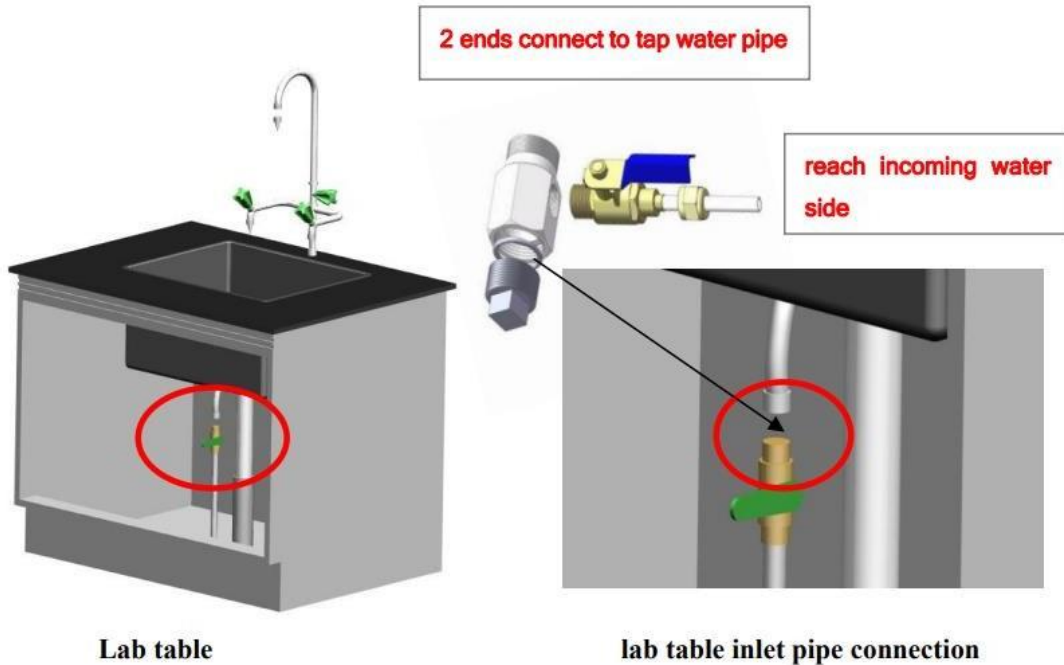
Fast coupling structure

- The O-ring acts as a sealing function, water pipes need to go through the O-ring.
- Collets act as lock/unlock, to lock pipe or fast unlock when replacing pipe.



## 6.4 Inlet installation

Lab table installation (gooseneck tap), install 3-way and ball valve, ① inlet valve 1 Close the inlet valve, apart the inlet soft pipe from the water valve, rolling with sealing tape at thread 2 Close.



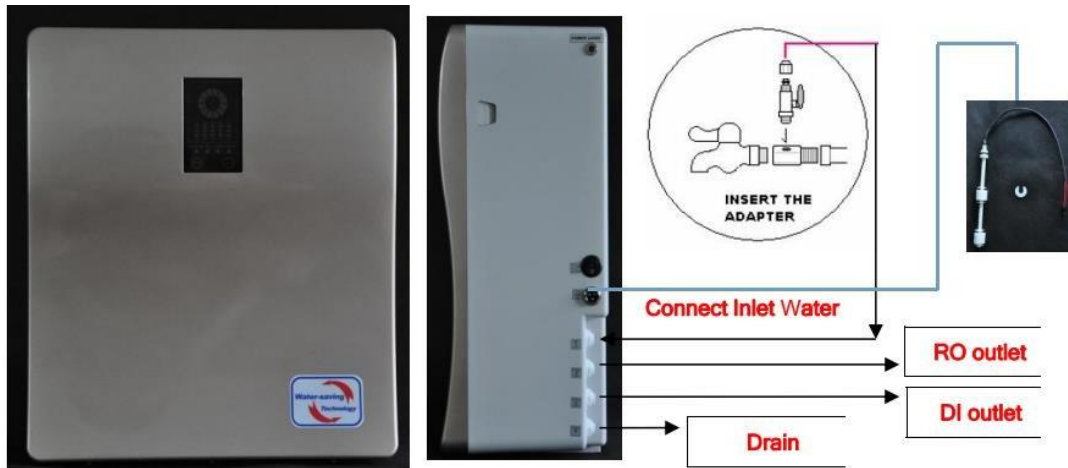
Lab table

lab table inlet pipe connection

- 1) Inlet valve, apart inlet soft pipe from the water valve, rolling with sealing tape and thread.
- 2) Screwing the 3-way valve between the soft pipe and valve, turn 4-way at 2-way ball valve position, which locates 3-channel side 3.
- 3) Use suitable length PE pipe, 1 end connected with ball valve (the connection has 2 formats, fast coupling or thread tighten), another end plug into inlet mouth which locates at main machine back with label.

## 6.5 Instrument Connection

Instrument Connection Instrument Connection see pictures, except inlet 3-way valve and ball valve, other connections are fast-coupling, The main machine has with water trial-run machine, so its connector is blocked with a plug to avoid leakage of water during transportation. Level control connections: Playing with a pistol drill a 16mm hole in the roof of the TANK. Wire through the hole of 16mm, Use a U-type washer and nut to fix.



## 6.6 Sewage pipe installation

Use a suitable lengthened PE water pipe, one end is plugged into the sewage outlet side, attached with a Label, and the other end goes through the sewage channel.

## 7. Operations

### System Usage

- Open the water source, plug the electricity power plug, and push the power button for less than 3 sec.
- The main machine starts work, and it into a full-automatic water-making program.
- To get pure water, can open the water supply valve by hand. After getting the water, close the valve.
- When stops getting water, the main machine continues to work, to make RO water and transport it to the pressure drum.
- If the pressure drum water or Level reaches is full, wastewater stops discharge, and the main machine stops automatically.



**1<sup>st</sup> time use after installation, the 1<sup>st</sup> RO water, and after the pressure drum is full, should discharge the water from RO outlet. Long-time no use, or before working day off, please must shutdown power, shutdown tap water source, to avoid accident.**

## 8. Maintenance

### Daily maintenance

- If there is no special condition, must shut down multichines power, and shut down tap water source before working day off, to avoid accident.
- In principle, a pure water machine needs to go through water at least 1 time per 7-10 days, let the system run, and discharge reserved water inside, to avoid pollution of microorganisms.
- Long time no use of pure water, should discharge all RO water which in the pressure drum, to avoid pollution.
- Pressure-charge pump must work at the condition of water going through, no water will cause the pump to break easily.

### Consumable material replaces cycle-time

Refer to the below list for consumable material to replace cycle time, filters, and RO film. Long-time use will cause filters blocked and reduce water quality, A serious situation, will cause the pressure-charge pump to break or the machine cannot work properly.

### Consumable material cycle-time and Quantity list

Product name	Specification JC-1503	Suggested replace cycle-time
5µm PP deep filter core	1 pc/group	1~3 months
particulate active carbon filter core	1 pc/group	6~12 months
Precise active carbon bar filter core	1 pc/group	6~12 months
100GPD RO film	1 pc/group	1~2 year
10" de-ion pillar	2 pc/group	about 2/4 K liters

- Based on 5 hours per day, can calculate according to water volume.

## **Inspection method of consumable material**

### **1) Pre-handle inspection**

- Pre-handling includes rough filter (use for cleanup of 50-100 micro mm above dissolved particulate matter), precise PP cotton filter core (use for cleanup 5 micro mm above dissolved particulate matter), soft resin filter core (use Na<sup>+</sup> exchange to clean Ca<sup>+</sup> Mg<sup>+</sup>), KDF compound filter core (cleanup heavy metal ion, residue Cl and some organic polluted matter), particulate active carbon and bar-shape active carbon filter core (use for cleanup residue Cl and some organic polluted matter).
- Rough filter (optional) and precise PP cotton filter core mainly judge differences by eye. Rough filters commonly can be used repeatably (cleanup by washing off dirt), and precise PP cotton filter core uses a deep filter method, so only can be used 1 time.
- The new precise PP cotton filter core is white color cotton bar-sharp, use until cannot see its white color, and needs to be replaced. Soft resin filter core is commonly replaced according to local water hardness periodically.

### **2) RO film inspection**

- RO film is the key component to produce RO water, whether it is good or not will impact the water quality and super purified pillar lifetime.
- To judge whether it is good or not by 2 aspects, 1 is to measure the de-salt rate, and another is whether the produced water volume is within regular volume per minute or not.
- **Inspection method as below:** Measure de-salt rate: use a TDS meter or electricity conduct meter, to measure water source and outcome RO water.
- If the RO water TDS value is within 10% of the water source value (rated value: RO water TDS Value = 5% of the water source value), means the RO film is in good condition, if exceeds 10%, needs to replace the RO film.
- **Measure water, produce volume:** Need to prepare 500-1000ml measuring cylinder/cup and a second meter, to measure water produce volume. If the produced volume is lower than 50% of the theoretic volume, need to replace RO films.

### **3) Inspection of de-ion pillar**

- The de-ion pillar is the key component to produce DI water, RO water goes through the mix-bed resin inside of the de-ion pillar, via ion exchange, cleanup the -/+ ion so that produces de-ion water.
- De-ion pillar mainly on-line measure it via electricity conduct rate or resistance value.
- If the value can not meet the working requirement, need to replace de-ion pillar.

9. Troubleshooting

Problem		Cause		Solution
System no power		<ul style="list-style-type: none"> <li>No power connection.</li> <li>Transformer damage.</li> <li>Controller damage.</li> </ul>		<ul style="list-style-type: none"> <li>Check power supply is connected correctly or not.</li> <li>Check transformer index light.</li> </ul>
The machine shows good working condition, no pure water out or out less	No waste water out	Inlet electrical valve not open or electric circuit malfunction	RO film used for a long time, blocked	<ul style="list-style-type: none"> <li>Use a multimeter to whether the circuit works or not.</li> <li>Contact the engineer, who judges whether it needs to replace consumable material / spare parts or not.</li> </ul>
	Wastewater reverse	Wastewater valve malfunction		
	Waste Water out regularly	Pressure charge pump or electric circuit malfunction.		
Water shortage alarm		<ul style="list-style-type: none"> <li>The tap water valve is not open.</li> <li>pre-handling blocked.</li> </ul>		<ul style="list-style-type: none"> <li>Check incoming water.</li> <li>whether connect properly.</li> <li>Check inlet valve whether open.</li> <li>Replace pre-handling.</li> <li>Incoming water pressure is not enough, add a pressure charge pump or use a larger diameter incoming water pipe.</li> </ul>
Inspection alarm		The pure water machine works for more than 6 hours, and the machine stops, and alarms.		Electricity power reset.

## 10. Replacement

### (1) To replace pre-handling consumable material

- Shut down the incoming water ball valve, and shut down the pressure drum ball valve switch.
- Open the RO outlet valve, to clean up water in the pipe.
- Waiting after no water out, use a screwdriver to dig out the filter core fast connector.
- Get out the old filter core and put it into a new one with the same type.
- And check whether each connection has water leakage.

### (2) To replace RO RO film



A



B



C

- Pull off the pipe connection at the top cover of RO film ( see Pic A )
- Open the top cover by turning it off in a clockwise direction ( see Pic B )
- Left-hand hold RO film case tightly, use right hand to pull out the filter by clip.
- Put new film into the case to the bottom, then turn it softly to tighten, and then close the top cover in a clockwise direction.
- Finally put the pipe into a connector and add the case into its position.
- Open water source valve
- Open RO outlet and machine runs over 2 hours to wash the new film.

### (3) To replace the de-ion pillar group

All de-ion pillars are vertically installed, pull out the pipe connection, get out the old one and replace it with the new one, and plug with a pipe in proper sequence.



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