Operation Manual

BBPS-508

Laboratory Water Purification System

Thank you for Choosing Biolab products. Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation.

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01 Preface

Dear customer, in the beginning, we sincerely thanks for your choosing our water purification system. This water purification system has incorporated new cutting-edge technology. It is installed and used easily, and can provide you with RO water and ultrapure water for science research. So, it will benefit your work.
For the water purification system's maximum efficiency, it is suggested that the user manual should be read before installation. Any question in the installation process, please contact our technology engineers or dealers.

02 Specification

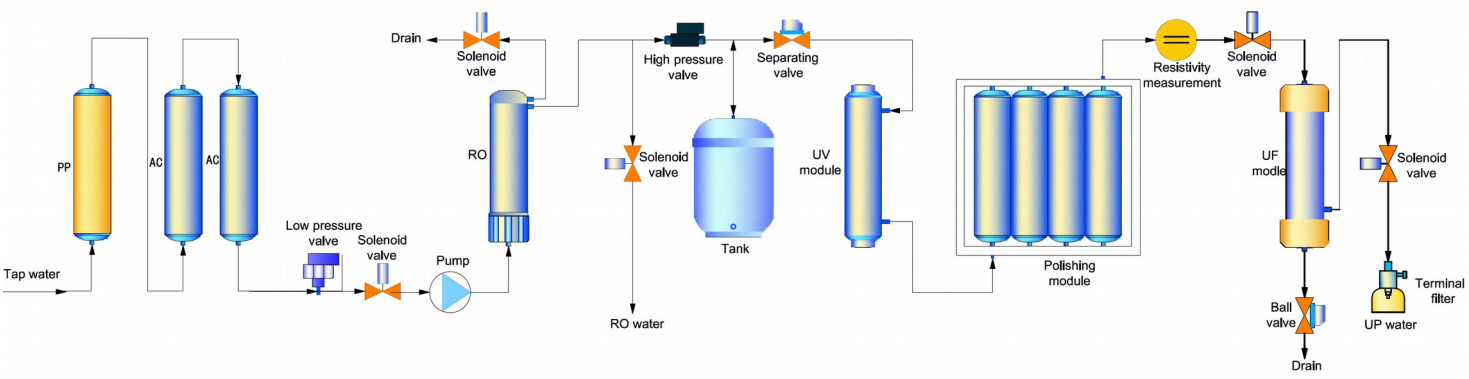
Model	**BBPS-504**	**BBPS-508**
Output(25℃)*	15Liters/hour*	30Liters/hour*
Flow rate	Up to 2 liters/minute (with pressure tank)	
Pure water outlet	2: reverse osmosis water, ultrapure water	
Ultrapure water quality		
Resistivity(25℃)	18.2MΩ.cm	
TOC*	<3ppb	
Bacteria	<0.1cfu/ml	
Particle(>0.1μm)	<1/ml	
Endotoxin	<0.001Eu/ml	
RNases	<0.01ng/ml	
DNases	<4pg/μl	
RO water quality		
Ion rejection rate	96-99%(with new RO membrane)	
Organics rejection rate	>99% (when MW>200 Dalton)	
Particles and bacteria rejection rate	>99%	
Feed water requirements	Tap water, temperature:5-45℃,pressure:1.0-4.0Kgf/cm2	
Dimension and weight	Length×Width×Height:410×220×420mm / Weight: about 18Kg	
Electrical requirements	AC100-240V, 50/60Hz	
Power	72W	
Standard configuration	Main body (Including 1 set of cartridge)+15 liters pressure tank+ TDS/conductivity test pen	
Purification System		
Sequence number	Specification	Quantity/set
LV.1	Special spun fiber cartridge	**1**

LV.2	Special active carbon block cartridge	**1**
LV.3	Special active carbon block cartridge	**1**
LV.4	**15series-**100GPD RO membrane	**1**
	30series-200GPD RO membrane	**1**
LV.5	Double wavelength(185&254)nm UV cartridge	**1**
LV.6	Ultrapure polishing resin cartridge	**4**
LV.7	5000 doulton UF cartridge	**1**
LV.8	(0.45+0.1)μm terminal filter	**1**

REMARKS:

* The value will be influenced by temperature and feed water's quality.

03 Water Flow Chart



04 Working Environments

- **Inlet water:** Tap water (TDS<200ppm will be suggested).
  If inlet water TDS>200ppm, pretreatment is recommended. Water with higher TDS will affect the quality of outlet water and life of purification cartridge.
- **Work temperature:** 5-45℃
- **Pressure:** 1.0-4.0Kgf/cm^2
- **Power:** AC100-240,50/60Hz,72W

(Clean, dry working environments would be suggested!)

05 Installation

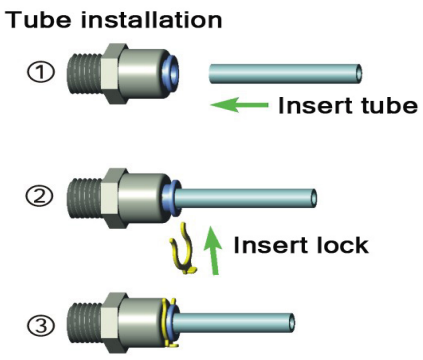
5.1 Preparation for installation

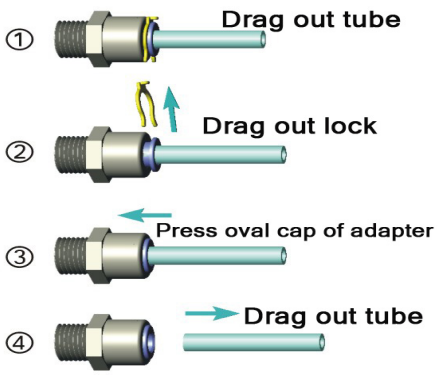
The purification system should be installed horizontally and near to tap.

5.2 Tube and adapter's connection

The adapter of the machine is high quality easy-put adapter. And material of tube is high quality's PE.

Tube installation and drag diagram





ATTENTION:

1 The tube should be cut with special tube cutter for rounded cut section. And rounded cut section should be guaranteed as much as possible with other cut tools.
2 Connect the tube-press the oval cap of the interface strongly, then insert the tube to the bottom of adapter.
3 Take off the tube-press the oval cap of the interface strongly, then drag out the tube. Do not
4 drag when the tube can't be dragged out any more.
5 The fore-end of the tube, which has been inserted to adapter, should be cut, when it will be used again.
6 Sufficient PTFE thread seal tape should be used in all the threaded joints for water leakage inhibitor or preventing.

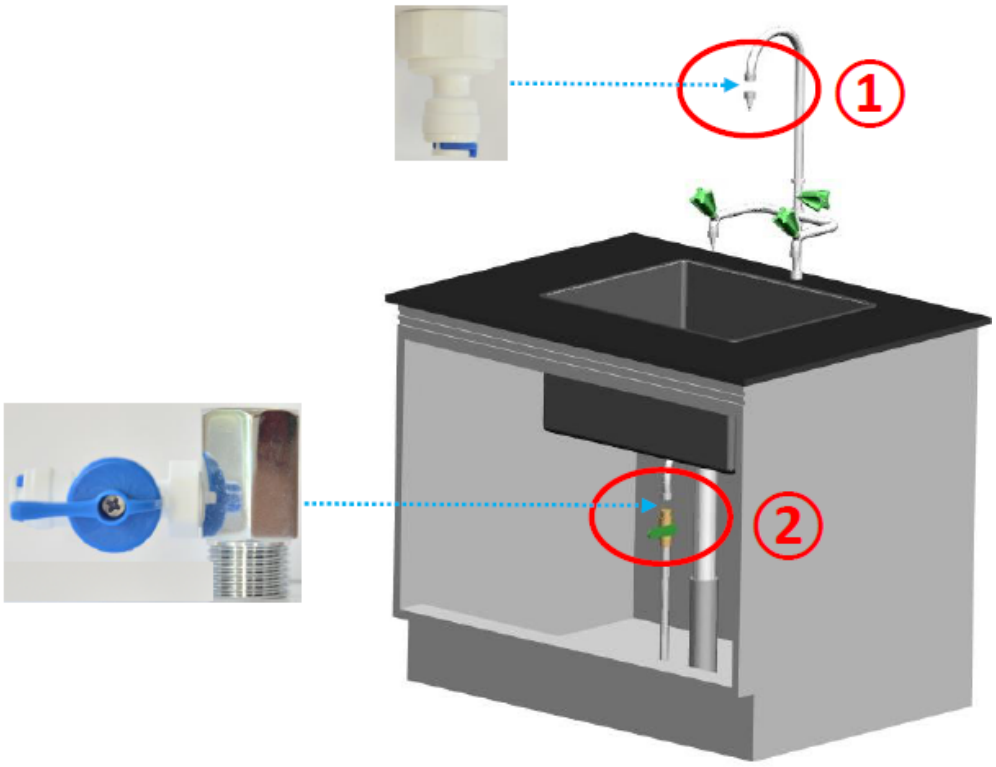
5.3 Installation steps

1. Open the packing-case, take out main body, accessory box, water tank (optional)**.**
2. Take out adapters and tube from accessory box, and read the Instruction Manual carefully**.**
3. External interface are on the back of machine, and it is labeled with different color's label. Moreover, its adapters are inserted with different colors stop plug.
4. Connect To Tap Water
   There are two ways to connect to the tap.

ATTENTION:

Stop plug should be pulled out before the following steps:

Guide Chart of 2 Ways to Connect To The Tap



①, ② is the place where the interface of machine's inlet water should be connected.

- **1st way-with tap water adapter 1**(1/2"internal thread to 1/4"fast-plug) to connect to tap water.

1. **Step: connect tap water adapter 1 to water source**

   Close the valve of the gooseneck. Dismantle the faucet of gooseneck. Screw tap water adapter 1 into the external thread of gooseneck.

2. **Step: connect tap water adapter 1 to interface of machine's inlet water**

   Use 1/4" PE tube with a suitable length. Insert one side into the interface of tap water adapter 1, and insert the other into the interface with blue label marked "To inlet water" at the back of machine.

- **2nd way-with tap water adapter 2**(tee joint and 1/4"ball valve) to connect to tap water.

1. Step: connect tap water adapter 2 to water source

Close the chief valve of tap water. Dismantle the tap.

Screw the 1/4" ball valve with external thread into the side thread with internal thread of tee joint.

Screw the tap into the internal thread at one end of the tee joint, and at last, screw the other end with external thread of the tee joint(with 1/4" ball valve and the tap at this time) into the internal thread of the tube, where the tap has been connected.

ATTENTION:

- Sufficient PTFE thread seal tape should be used in all the threaded joints for water leakage inhibitor or preventing

2. Step: connect tap water adapter 2(1/4"ball valve) to interface of machine's inlet water

Use 1/4" PE tube with a suitable length. Insert one side into the interface of 1/4"ball valve, and insert the other into the interface with blue label marked "To inlet water" at the back of machine.

ATTENTION:

- Extra pretreatment filters (optional) should be connected between the water source and main body.

5. Connect To RO Wastewater

Use 1/4" PE tube with a suitable length. Insert one side into the interface with black label marked "To drain" at the back of machine, and the other side is directed to drain. **(DO NOT JAM!!)**

6. Connect to water tank:

Screw the plastic ball valve onto interface with external thread, which is on the top of pressure tank.

Use 1/4" PE tube with a suitable length. Insert one side into the interface with yellow label marked "To water tank" at the left side of machine, and insert the other into the plastic ball valve.

ATTENTION:

The ball valve on the top of the tank should be open all the time except for maintenance.

1. **Connect to UF drain:**

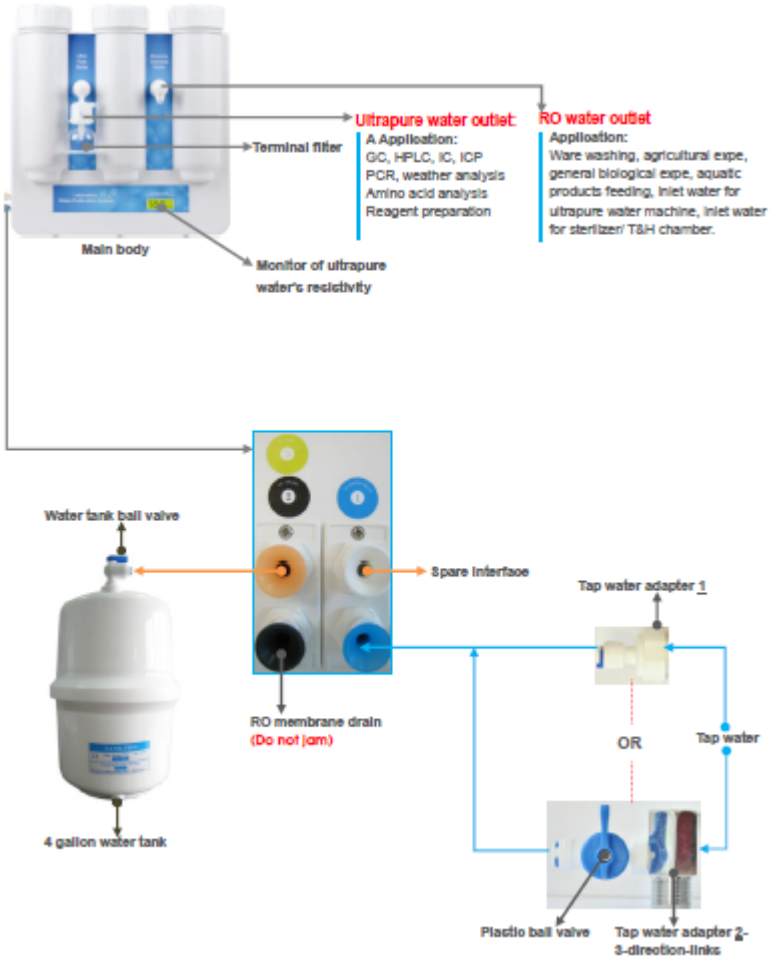
Use **1/4" PE tube** with a suitable length. Insert one side into the interface with **green label** marked **"To UF drain"** at the back of machine, and the other side is directed to drain**.**

ATTENTION:

The UF drain valve is closed all the time except for flushing UF membrane.

Thus the installation is OK.

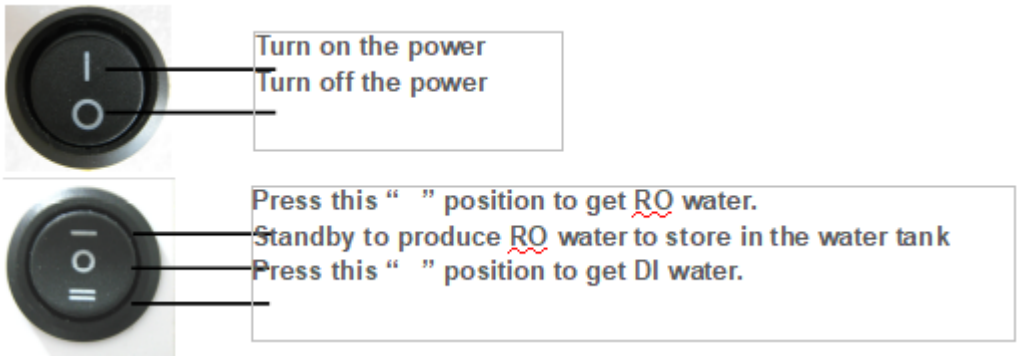
Installation Guide Chart



06 Usage Guide

All data have been set in the factory.
The machine will operate smoothly without any data-setting and debugging.

● The power switch and the switch of pure water outlet is on the side of the shell. Specific picture is as follows:



6.1 Starting Up

Turn on the tap water valve, insert the power line into the power source and turn on the power switch, then the system begins to produce pure water.

6.2 Getting Corresponding Pure Water

Press the switch to“ ” or “ ” position, which is on the side of the box, to get corresponding RO water or ultrapure water (higher quality water than RO water). When getting water process is ok, press the switch to “o” position.

6.3 Standby

When RO water and ultrapure water is not for use, the system will be in standby state. The system still produce RO water to store in the water tank (optional). Until tank is full, the system will automatically stop. The system will begin to produce pure water again when any pure water is used.

6.4 Releasing internal air of terminal filter

Unscrew the rounded bolt, which is on the side of terminal filter, open the valve of ultrapure water. When ultrapure water goes out, internal air of terminal filter will be released. Until terminal filter is nearly full of pure water, then tighten rounded bolt.

ATTENTION:

If the internal air of terminal filter is not released, pure water can not go through the terminal filter for air's resistance, then the system will stop working for high pressure.

6.5 Shutdown

Turn off the tap water valve and turn off the power switch. Then it is ok.

ATTENTION:

Make sure that the source water and power source is not connected, when the system is not in the use state for long time (for example, off duty).

6.6 Flushing UF membrane

- **Method of flushing UF membrane:**

  Turn on the UF drain valve, and press the switch to " " UP position, which are on the left side of the machine, to turn on ultrapure water's valve.

ATTENTION:

The "UF drain valve" is shut on normal condition, except for flushing UF membrane.

- **Frequency of flushing UF membrane:**

  At least one times every week, and at least lasting 30 seconds every times.

6.7 The Usage to Keep High Quality Pure Water

1. The pure water is easily polluted by surrounding environment. So getting fresh pure water is suggested.**2** Keep water tank from sunlight for microbe's reproducing. **3** When get high pure water, initial high pure water is suggested to drain to get steady pure water **4** Avoid air bubble when get pure water to reduce air pollution.

ATTENTION:

The microbe's reproducing will reduce the life of cartridge, when the machine does not work for long time. So the machine's work every 7-10days is necessary.

07 Water Quality Test

The system has 2 method of water quality measuring.

- One method is On-line resistivity monitor, which is used to monitoring ultrapure water's quality.
  Measure unit: Resistivity (MΩ.cm)
- The other is TDS/Conductivity pen. which is used to testing reverse osmosis water and tap water's quality.
  Measure unit: TDS (total dissolved solid, ppm) or conductivity (μs/cm)

REMARKS:

- Under normal conditions, new RO membrane's desalination rate is above 95%. It means that TDS of RO water should be less than TDS of inlet tap water×5%.
- If TDS of RO water > TDS of inlet tap water×10%, it means that RO membrane's desalination can't meet the minimum requirements. RO membrane should be replaced at once.
- Conversion relations between TDS and conductivity rate(μs/cm):
  If TDS<50ppm, conductivity rate (μs/cm) ≈TDS×2
  If TDS>200ppm, conductivity rate (μs/cm) ≈TDS×(1.5~1.7).

08 Consumables

Item No.	Specification	Suggested replacement term
PC-PP-ZK	Special spun fiber cartridge	About 2-6 months
PC-AC-B-ZK	Special active carbon block cartridge	About 4-6 months
RO-100GPD	100GPD RO membrane(S15)	About 12-24 months
RO-200GPD	200GPD RO membrane(S30)	About 12-24 months
LAMP-(185nm&254nm)-10W-M	Double wavelength(185&254)nm UV lamp	About 9000 hours
PTC-UPPR-K	Mixed bed resin cartridge	About 1000 liters pure water/set
UF-5000D	5000 doulton UF cartridge	-
TF-(0.45+0.1)μm-S	(0.45+0.1)μm terminal filer	--

Remarks:
Worse inlet feed water quality or big dosage will reduce cartridge life.

09 Normal Trouble Diagnosis

Normal trouble	Cause	Diagnosis
No power	-No plug in -Power adapter broken	-Check the power connecting -Replace new adapter
No pure water goes out or a little amount of pure water	-Valve of pure water outlet broken -Pump broken -Cartridges or filters' life ends	-Replace new valve -Replace new pump -Replace new cartridges or filters
Cartridges' life warns	-Cartridges' life ends	-Replace new cartridges
Water leakage	-Adapter or something broken	-Check, insert and drag out again, replace
Water quality deteriorate	-Cartridges or filters' life ends -Water quality sensor broken	-Replace new cartridges or filters -Replace new water quality sensor

- All other matters not mentioned herein, please contact us directly.

10 Warranty and Repair Regulation

The products enjoy repair service since the day of purchase. In one year from the purchasing day, we are obliged to replace components for customers free of charge, due to non-human-behavior factors, except for:

(1). All the consumables;
(2). Damage caused by maloperation or use in abnormal situations;
(3). Disassembly any part of the machine or human-behavior damage;
(4). Not repaired by our serviceman.

Specification can be changed without any prior notice for development.

BIOLAB SCIENTIFIC LTD.
3660 Midland Avenue, Suite 300, Toronto, Ontario M1V 0B8 Canada
Email: contact@biolabscientific.com Tel: +1 707 533 1445
Website: www.biolabscientific.com