Operation Manual

BBPS-111

Basic Water Purification System

Thank you very much 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

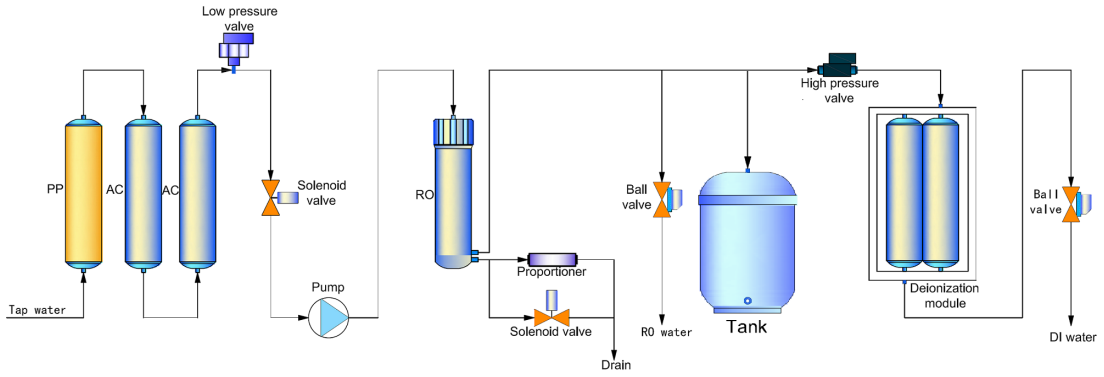
Model	BBPS-110	BBPS-111
Output(25°C)*	15 liters/hour	30 liters/hour
Flow rate	Up to 2 liters/minute (with pressure tank)	
Pure water outlet	2: reverse osmosis water, deionized water	
Deionized water quality		
Resistivity	13-17.5MΩ.cm	
Bacteria	<0.1cfu/ml (with optional 0.2μm PES terminal filter)	
Particles (>0.2μm)	<0.1cfu/ml (with optional 0.2μm PES terminal filter)	
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°C,pressure:1.0-4.0Kgf/cm2	
Pure water outlet	RO water, deionized water	
Dimension/weight	410L×400W×420H mm / Weight: about 20Kg	
Electrical requirements	AC100-240V,50/60Hz	
Power	72W	
Standard configuration	Main body (Including 1 set of cartridge)+built-in 12 liters pressure tank+ TDS/conductivity test pen	

Purification System		
Sequence number	**Specification**	**Quantity/set**
LV.1	10" spun fiber filter	**1**
LV.2	10" granular active carbon filter	**1**
LV.3	10" active carbon block filter	**1**
LV.4	100GPD RO membrane **(BBPS-110)**	**1**
	200GPD RO membrane **(BBPS-111)**	**1**
LV.5	Mixed bed resin cartridge	**2(BBPS-110)/3(BBPS-111)**

REMARKS:

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

03 Water Flow Chart



04 Working Environment

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°C

Pressure: 1.0-4.0Kgf/cm2

Power: AC100-240,50/60Hz,72W

Clean, dry working environments would be suggested!

05 Installation

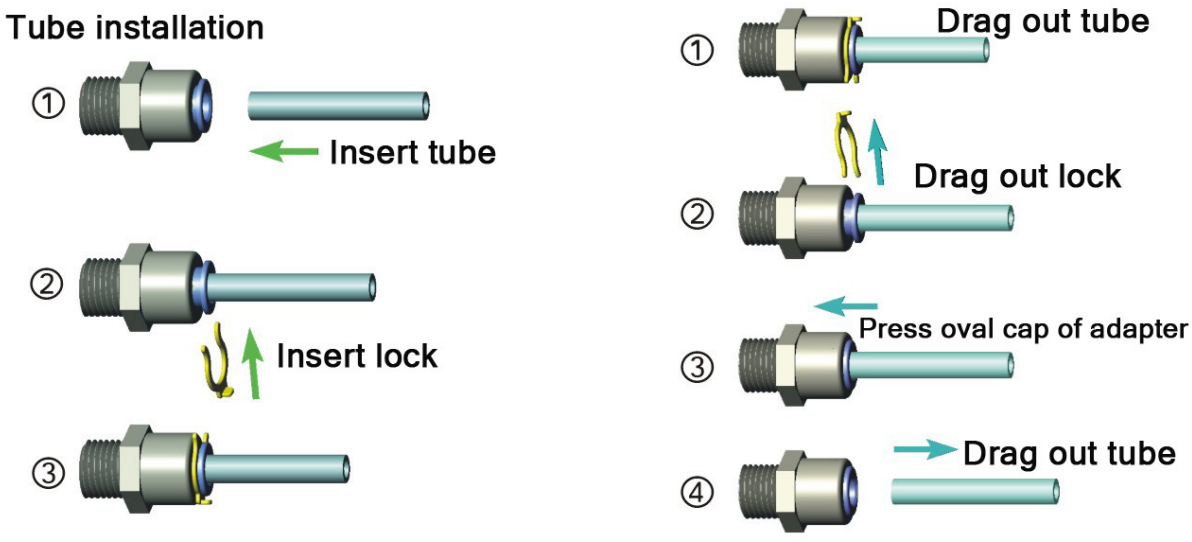
5.1 Preparation for installation

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:

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.

Connect the tube-press the oval cap of the interface strongly, then insert the tube to the bottom of adapter.

Take off the tube-press the oval cap of the interface strongly, then drag out the tube. Do not drag when the tube can't be dragged out any more.

The fore-end of the tube, which has been inserted to adapter, should be cut, when it will be used again.

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 color's stop plug.

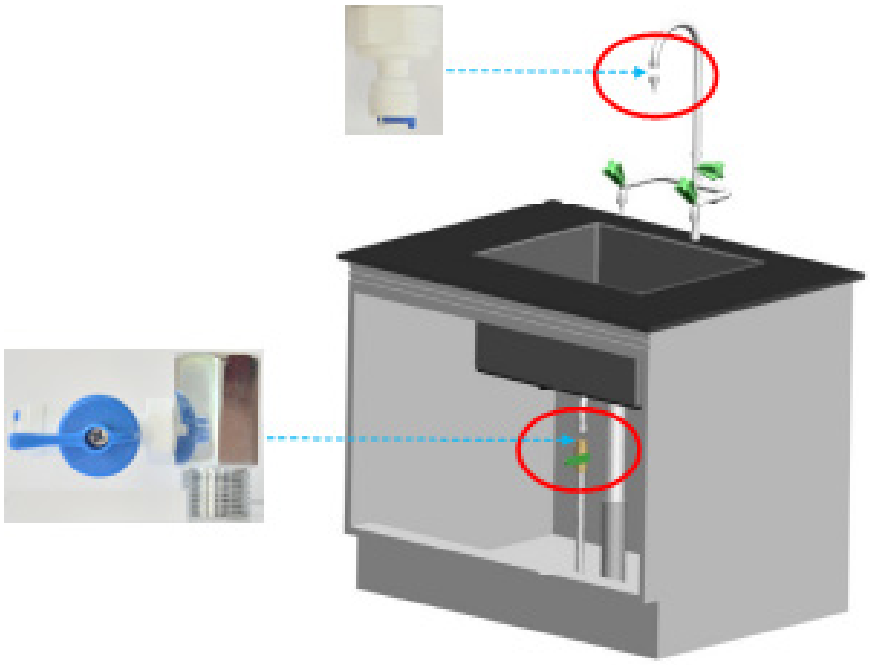
ATTENTION:

Stop plug should be pulled out before the following steps.

(4). Connect To Tap Water

There are two ways to connect to the tap.

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 3/8"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 3/8" 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 3/8"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 3/8'' 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 3/8'' 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(3/8"ball valve) to interface of machine's inlet water

Use 3/8" PE tube with a suitable length. Insert one side into the interface of 3/8"ball valve, and insert the other into the interface with blue label marked "To inlet water" at the back of machine.

 **ATTENTION:**

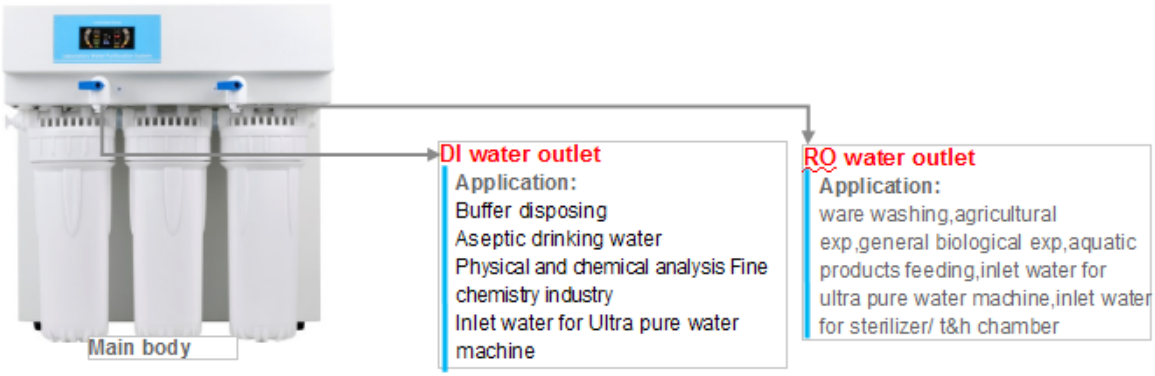
Extra pretreatment filters (optional) should be connected between the water source and main body.

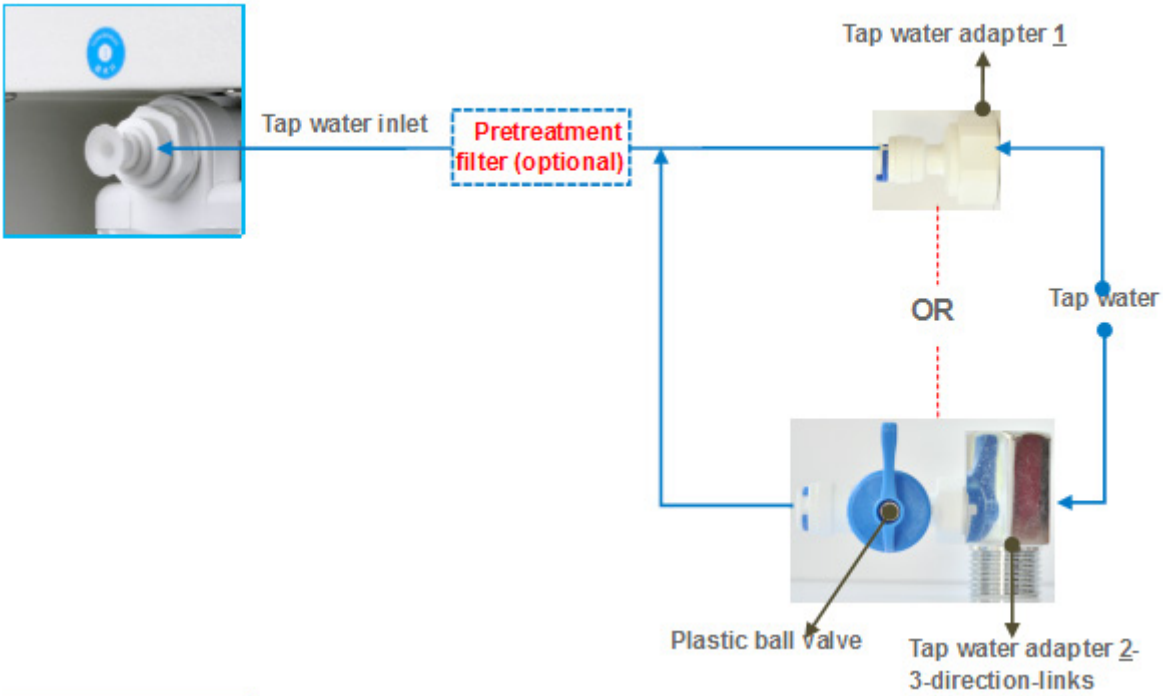
(5). Connect To RO Wastewater

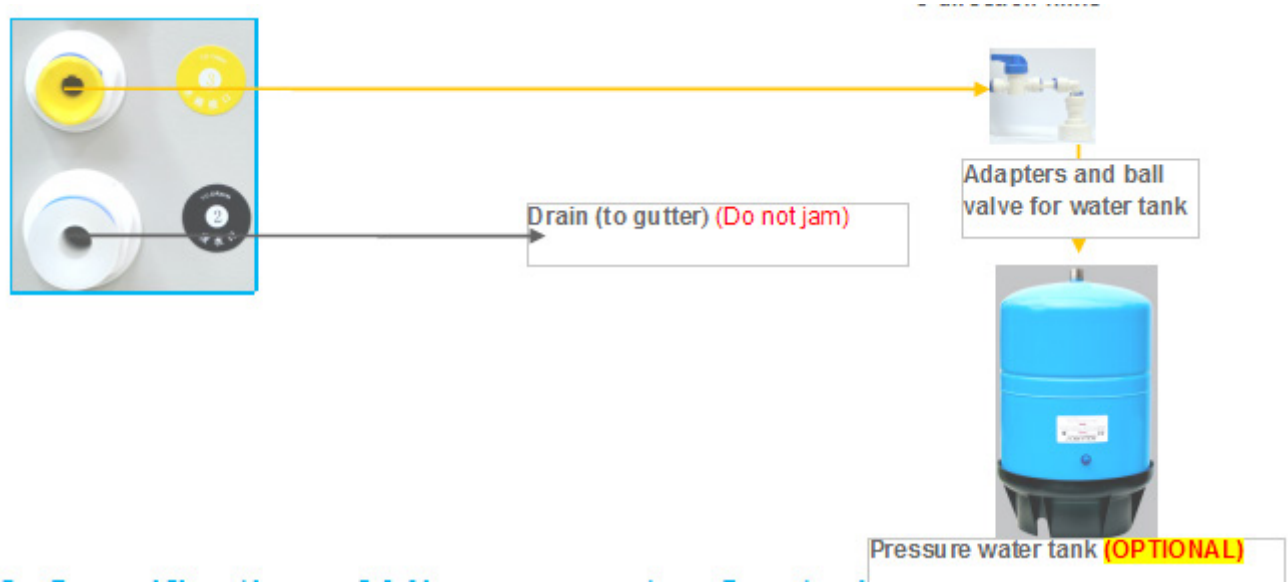
Use 1/4" PE tube with a suitable length. Insert one side into the interface with black label marked "To drain" at the back of machine, and the other side is directed to drain. (DO NOT JAM!!)

Thus the installation is OK.

Installation Guide Chart




Tap water adapter 1
Tap water inlet
Pretreatment filter (optional)
OR
Tap water
Plastic ball valve
Tap water adapter 2-3-direction-links


Drain (to gutter) (Do not jam)
Adapters and ball valve for water tank
Pressure water tank (OPTIONAL)

06 Specification of Microcomputer Controller

Status	Working Status
Flush	1. Turn on the power and identifier of electric source will light,, the system would automatically flush about 30 seconds; 2. Press the flush button,the system would automatically flush about 30 seconds; 3. Continuous work for 2 hours and no flush, the system would automatically flush about 30 seconds; 4. After quit the process of lacking water, the system would automatically flush about 30 seconds; **(High-pressure pump work, inlet valve open, flush valve open)**
Produce	The system would produce water, when the water pressure of the high-pressure switch low than the setting value. **(High-pressure pump work, inlet valve open, flush valve closed)**
Full	The system would enter the process of full water, when the water pressure of the high-pressure switch equal to the setting value. **(High-pressure pump stop, inlet valve closed, flush valve closed)**
Lack	The system would enter the process of lacking water, it will alarm 4 time every 15 minutes, when the water pressure of the low-pressure switch is lower than the setting value. **(High-pressure pump stop, inlet valve closed, flush valve closed)**
Check	Continuous work for 6 hours and no full water, show the system is broken, it will enter the process of checking, tell the user contact the after-sales. The system will alarm, when check out leaking. **(High-pressure pump stop, inlet valve closed, flush valve closed)**

Mode of Connection

Serial Number	Color	Layout	Serial Number	Color	Layout	Serial Number	Color	Layout
1	Yellow	Low-pressure switch	6	Black	Inlet valve	11	White	24Vdc
2	Blue	High-pressure switch	7	Yellow	Low-pressure switch	12	Pink	24Vdc
3	Blue	High-pressure switch	8	Green	Pump	13	Orange	Leaking probe
4	Red	Flush valve	9	Black	Inlet valve	14	Brown	Leaking probe
5	Green	Pump	10	Red	Flush valve			

Technique data

1.Working mode,continuous work for a long time

2.Working voltage;DC24V

3.Power:<1.5W(MA×)

4.Load current: 3A

5.Working temperature: -20°C - +70°C

6.Load voltage:24VDC

7.Working moisture:5%-85%

07 Usage Guide

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

Starting Up:

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

Getting Corresponding Pure Water:

Open the corresponding ball valve, which is labeled “RO” ”DI” in front of the shell, to get corresponding RO water or DI water(higher quality water than RO water). When getting water process is ok, close the ball valve.

Standby:

When RO water and DI 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.

Shutdown:

Turn off the tap water valve and drag out the power line. Then it is ok.

ATTENTION:

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

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 source 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 filter cartridge when the machine does not work for long time. So the machine's work every 7-10days is necessary.

08 Water Quality Test

The system has 1 method of water quality measuring- PORTABLE TDS PEN.

TDS pen (total dissolved solid, ppm), which is used to testing reverse osmosis water, tap water and deionized water's quality.

Judgement Standard of Water Quality

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.

Under normal conditions, If mixed bed resin cartridge is effective, TDS of DI water should be "0" ppm.

If TDS of DI water > 2ppm, it means that the quality of DI water is very bad. Mixed bed resin cartridge 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)

09 Consumables

Item No.	Specification	Suggested replacement term
PC-10PP	10" spun fiber filter	About 2-6 months
PC-10AC-G	10"granular active carbon filter	About 4-6 months
PC-10AC-B	10" active carbon block filter	About 4-6 months
RO-100GPD	100GPD RO membrane	About 12-24 months
RO-200GPD	200GPD RO membrane	About 12-24 months
PTC-MBR-DW	Mixed bed resin cartridge	About 1000 liters pure water/set

REMARKS:

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

Consumables guide chart

10 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.

11 Warranty & 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.

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