

Ultrapure Water Purifier

BK-UP-12V

1. System Overview

BK-UP-12V uses municipal tap water as the water source, enabling the convenient and rapid production of RO reverse osmosis water and UP ultra-pure water. It integrates a touch screen control system, dual-channel quantitative water extraction function, and has undergone comprehensive system optimization and technical upgrades.

It integrates a brand-new touch screen control system, following the standard two-stage reverse osmosis process: dual pumps and dual membranes + intermediate water tank (built-in type). The production capacity can reach up to 12 liters per hour.

Under poor water quality conditions, the conductivity of RO produced water can also be stable at 1-5 $\mu\text{S}/\text{cm}$, which is better than that of a single-stage RO system. The cost of consumables for the post-treatment purification unit is lower compared to the simple dual-stage RO system (single pump and dual membranes without an intermediate water tank). The design is more reasonable and the water quality is more stable, especially suitable for areas with high water conductivity or hardness.

2. Applications

Ultra-pure water system feed water, glassware cleaning/rinsing, microbial analysis, sample dilution and reagent preparation, general chemistry and qualitative analysis, water analysis and general HPLC, spectrophotometric measurement, buffer and medium preparation, high-pressure steam sterilizer, cleaning machine, fully automatic biochemical analyzer, immunological analyzer, constant temperature and humidity cabinet, salt spray test chamber, aging instrument, humidifier, etc. for the water supply of these instruments. HPLC, GC-MS, ICP-AES, ICP-MS, AAS, GF-AAS, TOC analysis, IC, electrochemical, ultra-trace and trace inorganic and organic matter analysis, molecular biology, microbiology, PCR application and analysis, DNA sequence analysis, mammalian cell culture, cell and culture medium preparation, monoclonal antibody production, electrophoresis, gel analysis

3. Feed Water Requirements

Urban tap water: conductivity < 400 $\mu\text{S}/\text{cm}$, 5 - 35 °C, 1.0 - 4.0 bar

(When the feed water conductivity is > 400 $\mu\text{S}/\text{cm}$, an external filter is recommended to be selected)



Section	Item	Specification / Component	Qty
4. System Process	1st stage	Pretreatment purification column (transparent)	1 pc
	2nd stage	KDF activated carbon composite purification column	1 pc
	3rd stage	Activated carbon block purification column	1 pc
	4th stage	150 GPD RO membrane	1 pc
	5th stage	50 GPD RO membrane	1 pc
	6th stage	Dual-wavelength (185 & 254 nm) UV lamp (imported)	1 set
	7th stage	Ultrapure polishing column	1 set
	8th stage	(0.45 + 0.2) µm imported PES point-of-use filter	1 pc
5. Technical Parameters — RO Permeate Water	Second-pass RO water (TDS)	1–5 µs/cm (conductivity ≤ 1% of feed water conductivity)	—
	Organics rejection rate	> 99% (when MW > 200 Daltons)	—
	Particulate & bacteria rejection rate	> 99%	—
5. Technical Parameters — UP Ultrapure Water	Resistivity	18.2 MΩ·cm @ 25 °C	—
	Heavy metal ions (ppb)	< 0.01 ppb	—
	Total organic carbon (TOC) *	< 3 ppb	—
	Bacteria	< 0.01 CFU/ml	—
	Pyrogens (endotoxins)	N/A	—
	Particulates (> 0.2 µm)	< 1/ml	—
	Ribonucleases (RNases)	N/A	—
	Deoxyribonucleases (DNases)	N/A	—
5. Technical Parameters — System	Purified water production *	12 L/Hour	—

	Maximum flow rate	2.0 L/min	—
	Water outlets	2 outlets: second-pass RO water & UP ultrapure water	—
	Dimensions / Weight (L × W × H)	54 × 47 × 61 cm / approx. 38 kg	—
	Power supply / Consumption	100–240 V, 50/60 Hz, 240 W	—
6. Operating Conditions	Ambient temperature	5 °C – 35 °C	—
	Relative humidity	20% – 80%	—
7. Standard Configuration	/	Main unit (including 1 set of purification columns) + built-in level-controlled water tanks × 2 + accessory kit	—

8. Features and Advantages

A brand-new 5.0-inch color touch screen, animated menus, comprehensive system information displayed at a glance, providing a new experience of fingertip touch operation

Real-time monitoring of 3 water qualities: source water, RO reverse osmosis water, and UP ultra-pure water. No need to collect water to view the water quality

2 high-precision quantitative (10-999999ml) and qualitative (0-18.25 MΩ.cm) water collection functions

Built-in dual-level water tank, which can display the water tank volume in real time. Without an external water tank, it can ensure a large flow of water output, saving more experimental space

Built-in independent TOC detection module, which can display the resistivity of ultra-pure water and TOC indicators on the interface

Full pipeline disinfection function for ultra-pure water, which can be manually executed as "circular disinfection", "water inlet disinfection", "water tank refilling", "manual discharge", and "stop disinfection" (optional)

Built-in WIFI module, allowing monitoring of equipment information and remote operation through the cloud platform or mobile app

The mobile terminal can handle all requirements such as full-process operation application, maintenance, and troubleshooting, making problem handling more convenient and efficient. All operation processes and data are fully recorded automatically

Equipment alarm push function, allowing immediate notification of equipment alarm information

Durable QR code certification management, synchronizing updates to the equipment and backend, preventing equipment failures caused by using unqualified consumables; cloud storage of all replacement records for easy traceability.

The lifespan of PP, KDF, AC, RO, DI, UP, UV, UF, TF consumables can be set, showing the usage time and amount, and automatically reminding for replacement when expired.

Automatic detection and alarm functions for water shortage, water tank full, source water, RO reverse osmosis water, UP ultra-pure water exceeding standards, etc., providing safety assurance

USB interface and memory card, automatically recording one year of operation data. The time range can be set to export complete data through the USB interface. The entire machine complies with GLP

High-strength all-engine plastic chassis, ergonomic design, beautiful appearance, preventing corrosion and rust,

ensuring the cleanliness of the machine, in line with GLP specifications

Pre-treatment components with a cam-lock interface, requiring only a gentle rotation to quickly replace

A brand-new integrated ultra-purification component, with optimized structure, significantly extending the replacement cycle, using original nuclear-grade resin from Dow USA, ensuring the quality of ultra-pure water at all times

Automatic anti-scaling and flushing function for RO membranes, allowing setting of flushing intervals and durations, with a manual forced flushing program, prolonging the service life of RO membranes

Factory and customer secondary passwords, system settings are protected by passwords to prevent unauthorized changes

System time setting function, allowing setting of year/month/day/time, and timed standby (0-60Min) and timed shutdown (0-24Hour)

Complete information query and data management functions, water collection records - water quality and quantity, consumable usage and replacement records, real-time alarms, historical alarms, etc.

Multiple specifications of water storage tanks available, compatible with pressure water tanks and level water tanks, two pure water storage methods, meeting different water volume and application requirements

Modular design, pre-treatment, RO, and subsequent purification units are all independent structures, making system maintenance and filter element replacement more convenient

All pipes and joints are NSF-certified, minimizing TOC release in the system and ensuring pure water quality

The ultra-pure section uses high-purity PFA piping, polyacetal joints, low-release electromagnetic valves, ensuring ultra-pure water quality

Ultra-long-life composite KDF pre-filter column, capable of not needing replacement for 1 year, reducing operating costs

Dow original imported RO membrane sheet components, achieving the combination of long service life, stability, and high desalination rate of RO membranes

Dual-wavelength (185nm & 254nm) UV lamp components (imported lamp tubes), effective sterilization, reducing TOC, enhancing the application range of the system

(0.45 + 0.2) µm imported PES polyether sulfone composite filter membrane terminal sterilization filter, ensuring that the outlet water is sterile.

9. Remarks

* The values are affected by different temperatures, water quality of the incoming water, and the total amount of pollution in the incoming water. TOC < 200 ppb