

Benchtop Ultrasonic Cleaner LB-23 BUC



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1. Safety Measures

Warns:

- 1) This product contains dangerous voltage, so do not start it at a high temperature or humid location to avoid electric shock.
- 2) Do not impose great impact on this machine and handle it with care to prevent impairment to performance or life span of it.
- 3) Locate this machine properly to avoid any accident resulting from children's access to it.
- 4) Perform any maintenance operation only after the power supply is disconnected to avoid any safety accident.
- 5) The machine contains high voltage during operation, so do not dismantle its enclosure to avoid any hazard.
- 6) Clean the enclosure with a soft dry cloth after disconnecting the power cable.

Safety Consideration

- 1) During normal operation of the ultrasonic generator, a consistent sound results from the harmonic oscillation of the tank body impacted by ultrasound wave, and no agitation but ripple is caused on the surface of cleaning fluid by the explosion of the cavity.
- 2) In case of discontinuous oscillation, increase or reduce the cleaning fluid by a small quantity to eliminate such oscillation to facilitate the cleaning of the workpiece.
- 3) While ensuring adequate cleaning of the workpiece, keep the generator operating intermittently, as the long-term consecutive operation may result in high-temperature insides and accelerate the aging of electronic components in it.
- 4) do not use any inflammable detergent.
- 5) Start heating or ultrasonic wave generator only when the cleaning tank contains fluid, or otherwise the machine may be burnt out or even result in fire.
- 6) Prevent splash of cleaning fluid or water into the machine or energy converter, which may cause electric leakage or short-circuiting, and thereby damage the converter.
- 7) Any foreign matter falling into the tank shall be taken out immediately.
- 8) Before changing or discharging the cleaning fluid, make sure the fluid is at normal temperature the ultrasonic wave generator is shut down and the power supply is disconnected.
- 9) Remove any dirt in the tank after operation.
- 10) Keep the external surface of the machine clean.

2. Introduction

Benchtop Ultrasonic Cleaner LB-23BUC is a robust tanked structure with a capacity of 3.2 L. It sweeps the ultrasonic frequency of 40 kHz which creates waves in the tank water in order to clean out lab wares and apparatus. It is equipped with a digital display and a thermostat that provides a maximum temperature of 80°C.

3. Features

1. Stainless steel tank and moisture proof design
2. High Q transducer
3. Digital sweep generator for constant electronic wave
4. Anti-corrosion treatment with stainless steel interiors

4. Specifications

Model No.	LB-23BUC
Capacity	3.2 L
Tank dimensions (L × W × H)	240 × 135 × 100 mm
Heating Power	100 W
Frequency	40 kHz
Timing	10 sec ~ 600 sec
Power supply	AC 220 ~ 240V; 50 Hz / 60 Hz
	AC 110 ~ 120V; 50 Hz / 60 Hz
Weight	3.9 kgs

5. Applications

Used for cleaning irregular and complex instruments, lenses and other optical parts, dental and surgical instruments, electronics.

6. Installation

- 1) Place the machine horizontally at a well-ventilated and dry location.
- 2) Select appropriate detergent, cleaning water or other solution based on properties of work piece to be cleaned.
- 3) Properly and firmly connect the plug to a three-pin power socket which is grounded reliably to ensure safety.

7. Operations

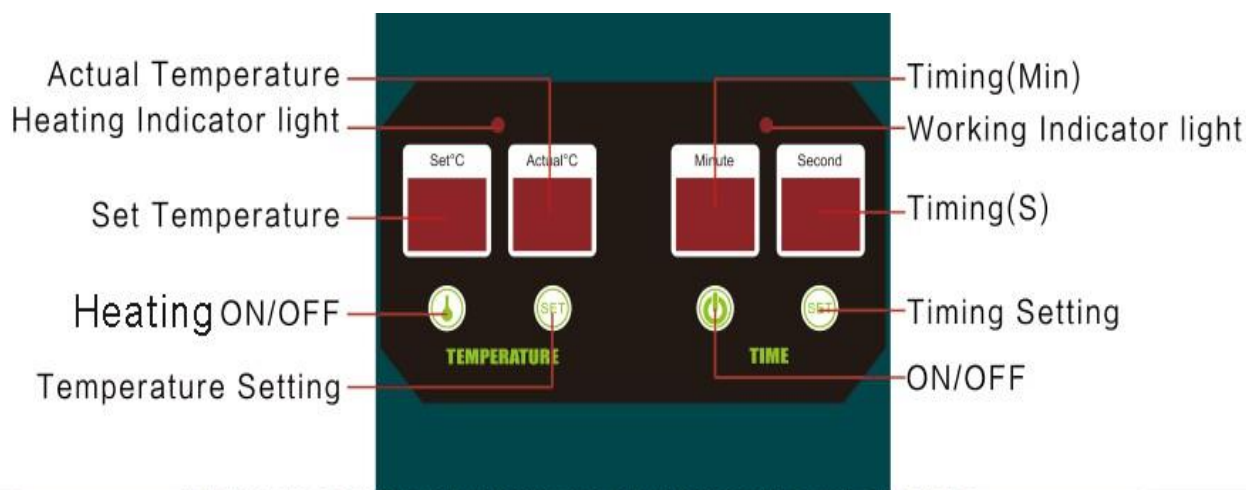


Figure-1

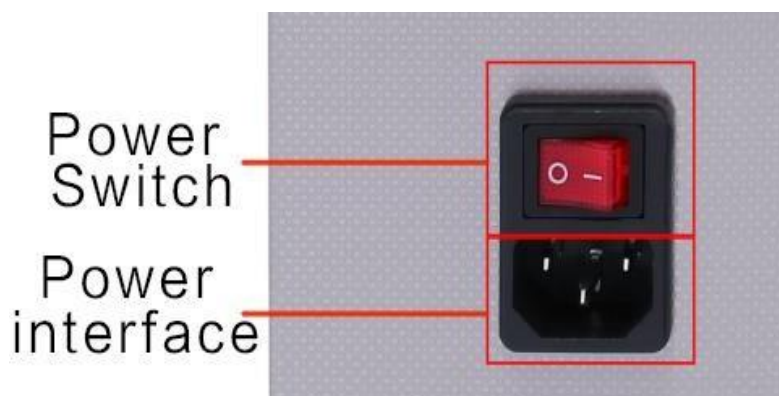


Figure-2

7.1 Operation Instructions

- 1) Load cleaning fluid into the tank and connect the power supply (which shall be grounded reliably).
- 2) After power-on, current actual temperature is displayed, and the default temperature is 20°C
- 3) The ultrasound wave operating time is 99 minutes by default.
- 4) **Adjustment of ultrasound operating duration:** Press the time setting button, one push to increase one minute; long press it to increase fast, in a loop of 1-99 minutes.
- 5) **Adjustment of operating temperature:** Press the temperature setting button, one push to increase one minute; long press it to increase fast, in a loop of 1-80 degrees.
- 6) After the target temperature is set properly, press the heating ON/OFF button to start the heating tank (the heating system is started and the heating indicator lamp turns on when the target temperature is higher than the current actual temperature; the heating system is stopped when the target temperature is lower than current actual temperature) and press it again to stop heating.

- 7) After operating duration is set properly, press timer ON/OFF button to start operation and the operating indicator lamp turns on; press the button again to stop operation and operating indicator lamp goes out.

7.2 Factors influencing Performance

- 1) **Ultrasonic power density:** Higher power density results in better cleaning performance and higher cleaning speed. Higher power density is appropriate for cleaning of work piece with stubborn dirt, and lower power density is suitable for any precision work piece (generally ultrasonic power density ranges between 0.01-0.02w/ml).
- 2) **Ultrasonic Frequency:** Lower frequency results in better cavitation performance. Higher frequency contributes to better refraction/ reflection performance.
- 3) Lower frequency should be applied for cleaning of simple surface while higher frequency for cleaning of complex surface with deep or inaccessible hole. (80KHz, 120KHz)
- 4) **Cleaning temperature:** Ultrasound wave will present the best cavitation performance at a temperature range between 40~50°C. Higher cleaning temperature facilitates breakdown of dirt, while a temperature above 70°C~80°C may impair effect of ultrasound wave and deteriorate cleaning performance.
- 5) **Cleaning duration:** Longer cleaning duration presents better cleaning performance (except for special material).
- 6) Other influential factors include type and properties of cleaning fluid and the dirt to be removed.

8. Maintenance

This instrument can be utilized and cared for by trained personnel. Conduct regular inspections to ensure proper maintenance.

- 1) Check the power supply and line connections for any looseness, overheating, damp absorption, or poor contact.
- 2) Inspect the sealing of the bottom board of the cleaning tank for any leakage. Check the joint between the drain pipe and the cleaning tank for leakage.
- 3) For looseness of ultrasound wave converter or burnout of power tube.
- 4) The ultrasound wave equipment shall be operated and stored in a well-ventilated, dry, and clean place to facilitate good performance and long service life.

9. Troubleshooting

Malfunctions	Solutions
Failure of Ultrasonic Wave	• Check whether the power cable has been connected properly (by inspecting the operation of the power indicator lamp). • Check whether the PCB has been connected properly to the power socket. • Check whether the fuse tube is broken
Weak ultrasonic wave	• Check whether the power voltage is normal. • Inspect whether the energy converter gets loose or if there is any shock absorption material or workpiece under the tank. • Check whether the cleaning fluid temperature is normal (recommended operating temperature is higher than 30 degrees) or if there are many air bubbles in the fluid or on the tank wall (repeated power-on/off will reduce the bubbles). • Check whether the solvent is added excessively.
No heating	• Check whether the target temperature is too low (lower than the current actual temperature). • Check whether the heater cable is disconnected or loose. • Check whether the heater is broken (due to a shortage of cleaning fluid)
Electric leakage	• Check whether the machine has absorbed damp or corroded. • Check whether the cable tray to each component is damaged, loosened, or broken. • Check whether the earthing wire is in good condition.



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