



Standard Industrial Single Tank Ultrasonic Cleaner

JP-120~11512(ST/G) Series

User Manual



About Skymen

Skymen is a leading global manufacturer of industrial cleaning equipment and a provider of precision cleaning technology solutions. We are dedicated to the R&D, production, and sales of advanced precision cleaning solution equipment, including ultrasonic cleaning, megasonic cleaning, vacuum hydrocarbon cleaning, high-pressure spraying, wet cleaning, and plasma surface treatment. Serving industries such as auto parts, mechanical hardware, optics, power, semiconductors, consumer electronics, medical, aerospace, rail transportation, new energy, food, and construction machinery with customized, innovative, and competitive price cleaning solutions and help businesses worldwide achieve high cleanliness standards while ensuring efficient and sustainable production.

2007

Founded

35,000⁺ m²

Manufacturing Center

350⁺

Employees

100⁺

Export Region

20⁺

Industries Served

Three Bases



Manufacturing Center

Responsible for product production and R&D validation



R&D Center

Specializing in precision cleaning technologies to meet global customer needs



Marketing Center

An operation center integrating sales, brand, human resources, and finance

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1. Instruction for Use

1.1 Equipment Overview

The JP Series single-tank ultrasonic cleaner is our standard model, constructed with high-quality 304 stainless steel plates for strong corrosion resistance and a long service life. It features high-quality pure industrial ultrasonic transducers independently developed by our company, utilizing the latest bonding technology and imported special adhesive to ensure high electroacoustic conversion efficiency and strong ultrasonic output power. Equipped with an automatic heating device with a temperature control range from room temperature to 95°C (temperature tolerance of $\pm 5^\circ\text{C}$).

1.2 Operating Environment

Temperature: -10°C to 40°C ; Humidity: 35%–85% RH

1.3 Cleaning Principle

Using ultrasonic transducers to emit high-frequency waves at either 28,000 (28kHz) or 40,000 (40kHz) vibrations per second, using liquid as the transmission medium. As these ultrasonic longitudinal waves travel through the liquid, they cause rapid pressure changes that create millions of microscopic vacuum bubbles—a process known as the "cavitation effect." When these bubbles implode, they generate powerful impact forces and instantaneous pressures exceeding 1,000 atmospheres. This continuous cycle of bubble formation and implosion effectively scrubs the surface of the object, quickly removing grease and dirt from deep holes, crevices, and hidden areas to achieve thorough cleaning without damaging the workpiece surface.

Industry	Industrial Cleaning of Workpieces and Materials
Industrial Manufacturing	Large engine blocks, heavy-duty bearings, mold & die components, industrial gears, hydraulic cylinders, and turbine parts.
Electronics & Electrical	Vacuum tube components, cathode ray tubes (CRTs), printed circuit boards (PCBs), quartz components, resistors, voltmeters, variable capacitors, circuit breakers, relays, connectors, electrolytic contacts, telecommunications equipment, speaker parts, power meters, motor/pump components, LCD glass, computer storage components, magnetic heads, etc.
Semiconductors	Integrated circuits (ICs), silicon wafers, gallium arsenide, diodes, lead frames, capillary tubes, manufacturing trays & fixtures, etc.
Aerospace	Engine turbines, structural components, fuel nozzles, and aerospace fasteners or fixtures.
Hardware & Tooling	Bearings, gears, steel balls, metal castings, hand tools, adjustable valves, cylinder components, burners, compressors, hydraulic components, spray guns, centrifuges, faucets, filter elements, etc.
Energy & Power	Heat exchangers, oil & gas valves, compressor parts, and industrial-scale filter elements.
Automotive & Rail	Crankshafts, pistons, transmission housings, brake system parts, and heavy-duty vehicle maintenance components.
Chemical Fiber	Spinnerets (fiber nozzles), filter protectors, spinning pump parts, and filter screens.

2. Technical Parameters

Model	Inner Tank Size (mm)	Capacity	Ultrasonic Power	Heating Power	Ultrasonic Frequency	Time Control	Power Supply
JP-120(ST/G)	500*300*250	38L	0-600W	1.5KW	28/40kHz	1-99h	Customized
JP-180(ST/G)	500*350*300	53L	0-900W	1.5KW	28/40kHz	1-99h	
JP-240(ST/G)	550*400*350	77L	0-1200W	3KW	28/40kHz	1-99h	
JP-300(ST/G)	550*450*400	99L	0-1500W	3KW	28/40kHz	1-99h	
JP-301(ST/G)	800*300*400	96L	0-1500W	3KW	28/40kHz	1-99h	
JP-360(ST/G)	600*500*450	135L	0-1800W	4.5KW	28/40kHz	1-99h	
JP-480(ST/G)	700*500*500	175L	0-2400W	6KW	28/40kHz	1-99h	
JP-600(ST/G)	800*600*550	264L	0-3000W	6KW	28/40kHz	1-99h	
JP-720(ST/G)	1000*600*600	360L	0-3600W	9KW	28/40kHz	1-99h	
JP-1108(ST/G)	1000*900*600	540L	0-5400W	18KW	28/40kHz	1-99h	
JP-1144(ST/G)	1200*1000*800	960L	0-7200W	24KW	28/40kHz	1-99h	
JP-1180(ST/G)	1200*1000*1000	1200L	0-9000W	36KW	28/40kHz	1-99h	
JP-1192(ST/G)	1200*1200*1000	1440L	0-9600W	36KW	28/40kHz	1-99h	
JP-1216(ST/G)	1500*1000*1000	1500L	0-10800W	36KW	28/40kHz	1-99h	
JP-1288(ST/G)	2000*1200*800	1920L	0-14400W	36KW	28/40kHz	1-99h	
JP-1360(ST/G)	2000*1200*1000	2400L	0-18000W	36KW	28/40kHz	1-99h	
JP-1432(ST/G)	2000*1500*1200	3600L	0-21800W	36KW	28/40kHz	1-99h	
JP-1576(ST/G)	2500*1500*1200	4500L	0-28800W	36KW	28/40kHz	1-99h	
JP-1648(ST/G)	3000*1500*1200	5400L	0-32400W	36KW	28/40kHz	1-99h	
JP-1720(ST/G)	4000*1600*1000	6400L	0-36000W	36KW	28/40kHz	1-99h	
JP-1936(ST/G)	3500*1600*1300	7280L	0-46800W	36KW	28/40kHz	1-99h	
JP-11152(ST/G)	2500*2000*1700	8500L	0-57600W	36KW	28/40kHz	1-99h	
JP-11224(ST/G)	3200*2000*1500	9600L	0-61200W	36KW	28/40kHz	1-99h	
JP-11368(ST/G)	8000*1200*1200	11520L	0-68400W	36KW	28/40kHz	1-99h	
JP-11512(ST/G)	8000*1600*1600	20480L	0-75600W	48KW	28/40kHz	1-99h	



Note: Models starting with "JTS" are custom-built. Specifications listed above do not apply.

For more details, please send a photo of your nameplate to your sales rep or contact us at www.skymen.cc.

3. Equipment Installation

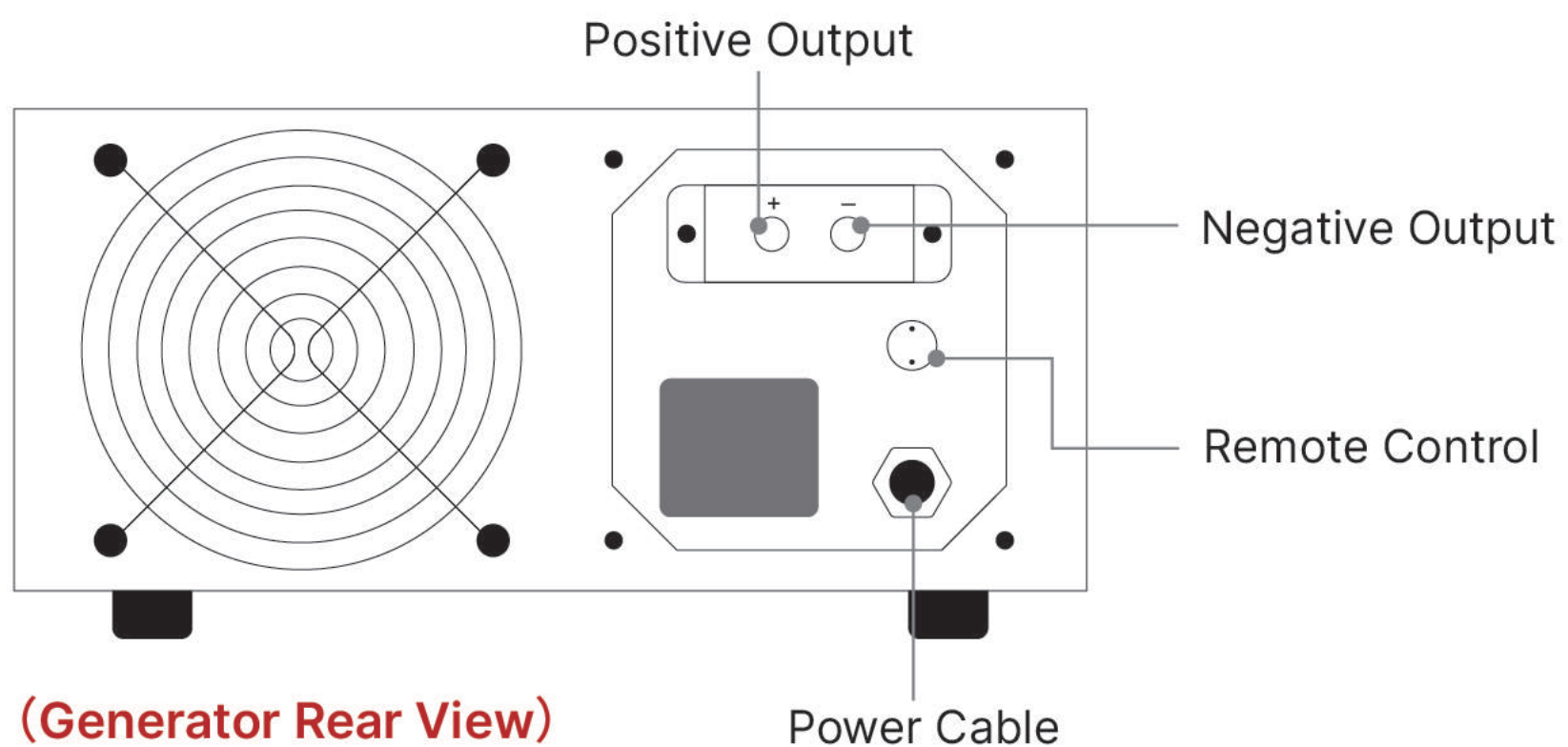
3.1 Machine Inspection

- Check whether the machine matches the purchase order.
- Inspect the machine for any deformation, impact damage, or other structural issues. Disassemble the outer panels to ensure no internal components or screws have loosened during transportation.

3.2 Equipment Installation

- Ensure the power supply matches the customized specifications (voltage, frequency, and current) pre-set for your order; please verify requirements on the machine's nameplate or technical data sheet.
- Place the machine in a dry environment; avoid high humidity or areas prone to flooding, as the bottom-mounted wiring must remain protected from water exposure.
- Maintain at least a 10cm clearance on all sides of the machine to ensure adequate heat dissipation; avoid placing the machine or generator in confined, high-temperature, or unventilated spaces.
- Confirm the ultrasonic generator is correctly powered and grounded before operation; always follow the detailed procedures outlined in the provided Generator Instruction Manual.

The generator wiring is as follows:



3.3 Generator Built-in Machine

Connect the machine to power and water supplies to begin operation.

3.4 Standard Power Cord Color Coding


Single-Phase Power	Live (L): Red	Neutral (N): Blue	Ground (PE): Yellow-Green
Three-Phase Power	Phase A (L1): Yellow	Phase B (L2): Green	Phase C (L3): Red
	Neutral (N): Blue	Ground (PE): Yellow Green	



Safety Note: For maximum protection, ensure the ground wire is connected securely.

3.5 External Generator Machine

The external generator machine separates the drive system from the main tank. The main tank requires three-phase power, while the generator uses single-phase power. The connection of the main power line is the same as the built-in type. For generator wiring, connect the drive and remote control lines according to polarity: Orange is positive (+), and Blue is negative (-). If wires are marked with +/-, simply match the symbols.

 **Note:** If your machine is a model with a built-in generator, please skip this section.

4. Directions for Use

STEP 1: Add Cleaning Solution

Ensure the liquid level completely covers the heating elements and the items to be cleaned. For models equipped with a filtration system (G series), both the main cleaning tank and the auxiliary filter tank must be filled to the overflow level before activating the filtration cycle.

STEP 2: Set Parameters (Time, Temperature, Power)

Adjust the values according to your cleaning requirements. Long-pressing the "+" or "-" buttons allows for continuous adjustment. Please refer to the Control Panel Guide for specific button functions.

STEP 3: Pre-heating

If your process requires heated cleaning, activate the heating function first. Allow the solution to reach the target temperature before proceeding to the next step.

STEP 4: Load Cleaning Items

Place items into the tank carefully. Avoid overlapping items to ensure maximum ultrasonic exposure and prevent the liquid from overflowing. Single-layer placement provides the most effective cleaning results.

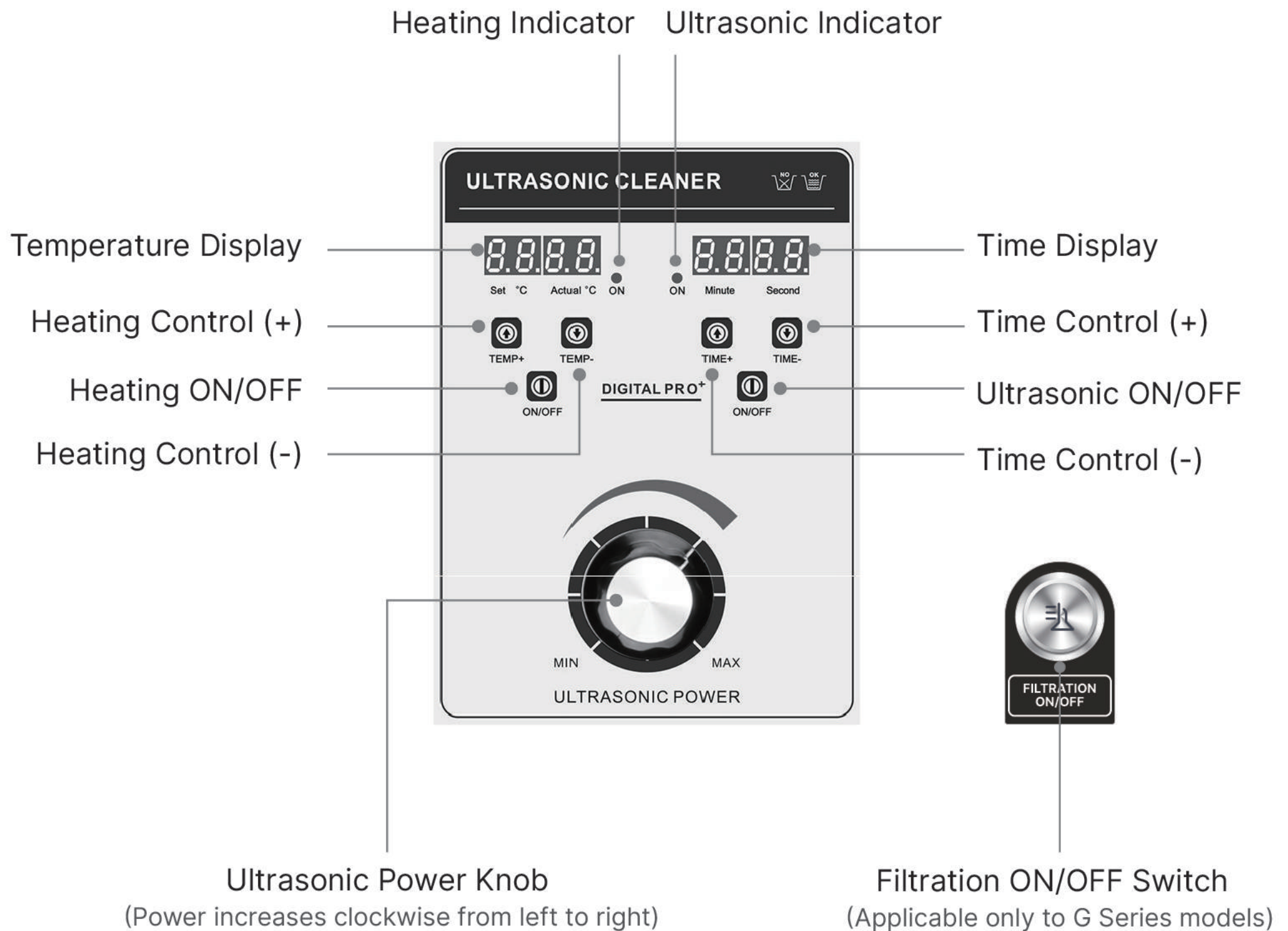
STEP 5: Start Cleaning

Press the Ultrasonic Start button to begin. For machines with filtration systems, determine whether to activate the filtration cycle based on the contamination level of the solution.

STEP 6: Post-Cleaning & Maintenance

To stop the process manually, press the Start button again; otherwise, the machine will stop when the timer reaches zero. Once finished, turn off the power, drain the solution if necessary, and wipe the inner tank clean and dry.

4.1 Control Panel Interface (ST & G Series)



4.2 Standard Model: 120~11512ST/G Series (Built-in Generator) Operation

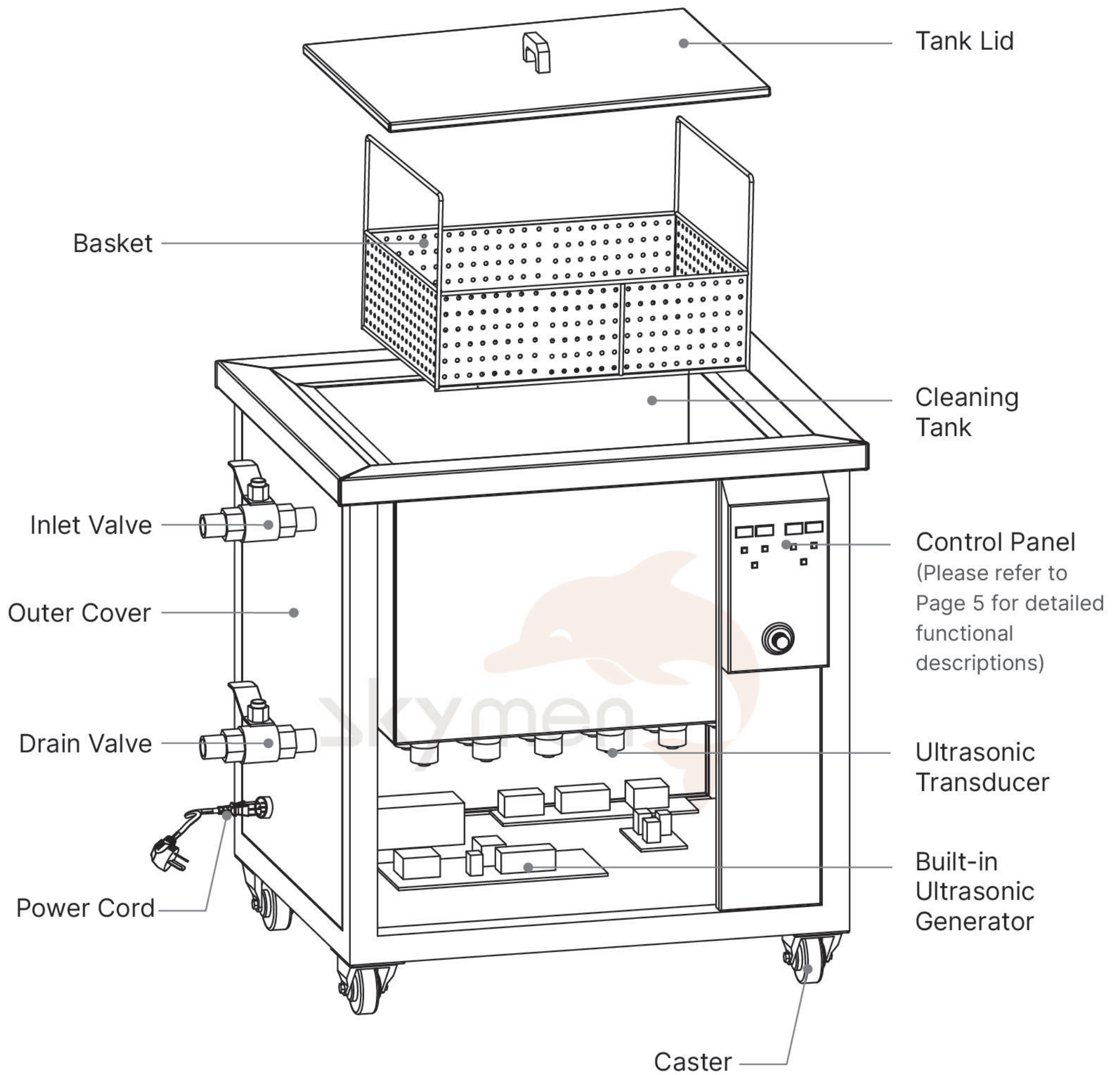
Timer Setting	Press the "+" or "-" keys to set the desired countdown (1–99 hours). To activate continuous operation, increase the time past 99 or decrease it below 0 until the display shows "ON" (Normally Open). The display shows the set time and counts down during operation, accompanied by the indicator light in the time window.
Temperature Setting	Adjust the target temperature using the "+" and "-" keys. Press the Heating ON/OFF key to activate the heaters; the "Heating Indicator" will light up while the function is active.
Power Adjustment	Use the ultrasonic power regulator knob to control intensity—turn counter-clockwise to decrease and clockwise to increase. Once the optimal power level for your cleaning task is found, avoid unnecessary adjustments to maintain consistent results.

5. Matters Needing Attention

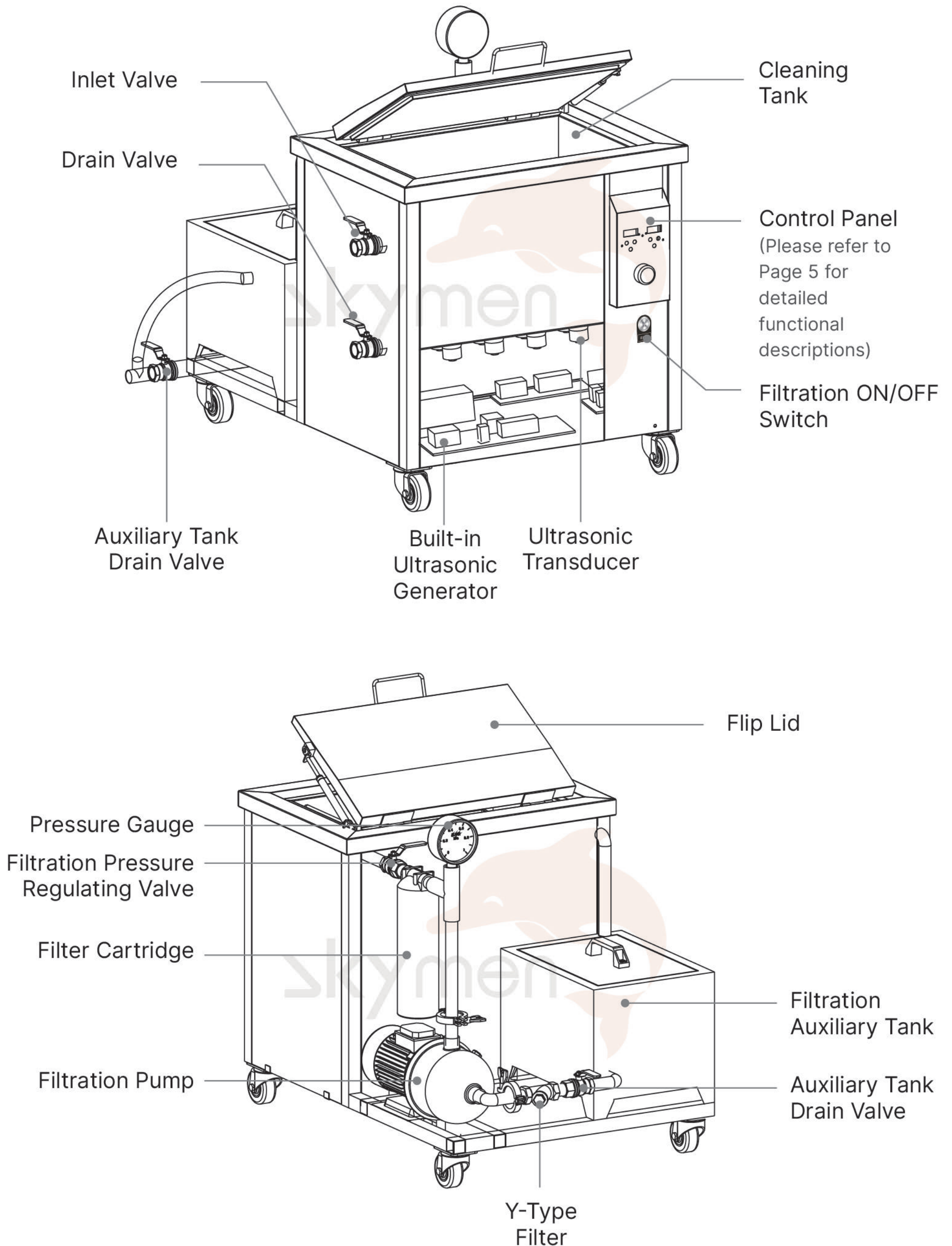
- Install the ultrasonic cleaning machine in a well-ventilated and dry location.
- Keep the machine away from any heat sources.
- It is strictly forbidden to use strong acids and alkalis, alcohol, and flammable/explosive liquids as cleaning media.
- Avoid splashing any liquid into the ultrasonic control cabinet.
- Keep the machine clean and ensure the power is turned off when not in use.
- Avoid impacts or violent movements of the machine.
- Precipitate, filter, or replace the cleaning solution regularly to ensure optimal cleaning results.
- Remove sediment from the tank promptly to prevent corrosion and extend the durability of the cleaning tank.
- Regularly use compressed air to remove dust from electrical components and equipment vents.
- Periodically test the insulation of the equipment and inspect the grounding wire connection.
- Regularly verify that the power supply meets the equipment's specified requirements.
- For models with a filtration system, replace the filter elements regularly.
- If the machine is idle for a long time, drain the solution and clean the tank thoroughly.
- When not in use for a long time, please turn it on once a month according to the method of use and work for 30 minutes.

6. Structure Diagram

6.1 Schematic Diagram of Standard Models (120~11512ST)



6.2 Schematic Diagram of Standard Models (120~11512G)



7. Device Maintenance

Device Name	Maintenance Content	Maintenance Standard	Maintenance Cycle	Remarks
Generator	<p>Externally: Disconnect power, unscrew the side screws of the generator, and remove the upper cover. Lightly brush the interior of the generator and blow off dust with an air gun</p> <p>Internally: Disconnect power, remove the machine cover. Where dust accumulation is visible, brush lightly and blow away dust with an air gun</p>	No visible dust accumulation inside the generator	Every 15 Days	The maintenance cycle may be adjusted based on the user's actual usage frequency. If the device already meets the maintenance standards, no further maintenance is required for that cycle.
Ultrasonic Transducer	Disconnect power, disassemble the machine cover, and wipe with a soft, lint-free cloth	No visible dirt on the surface of the transducers	Every 7 days	
Tank	Rinse with water and wipe with a soft cloth	No visible dirt on the surface of the inner tank	Every 3 days	
Water Valve	Rinse with water and wipe with a soft cloth	No visible dirt on the surface of the valve	Every 15 days	
Electrical Parts & Vents	Disconnect power, lightly brush and blow away dust with an air gun	No visible dust accumulation	Every 7 days	
Heating Plate	Disconnect the power supply, remove the machine cover, brush the heating plate lightly and blow off dust with an air gun	No obvious dust accumulation on the heating plate surface	Every 7 days	
Power Cable, Ground Wire, & Interfaces	Visual inspection and working tests	No visible breakage on wires	Every 15 days	
Filter Circulation System	Remove the filter element and perform a visual inspection	Determined according to usage frequency or filtration needs	Every 15 days	

8. Fault Inspection and Processing

Ultrasonic Not Working

- A. If the circuit board is damaged, open the side panel of the machine to check if the fuse on the main drive board is blown; for external models, open the generator to inspect the fuse. If you find the fuse is burnt or the circuit is damaged, please contact our after-sales service department or your sales representative directly.
- B. If the wiring is loose, please check the connections between the main drive board, transducers, adapter board, and control panel. Loose wiring can be reconnected or repaired by yourself.
- C. If the ultrasonic signal is not being received, please perform the following internal inspections:
 1. Check whether the display board and the ultrasonic indicator light function normally when the ultrasonic function is activated.
 2. Check whether the relay on the adapter board is triggered. You should hear a distinct "click" from the relay when switching the ultrasonic function on or off.
 3. If visual inspection reveals incorrect wiring, loose connections, or a damaged main drive board, please contact our after-sales service department or your sales representative directly.
- D. For any other situations, if none of the above conditions are the cause of the failure, please contact our after-sales service department or your sales representative for professional assistance.

Display Is Abnormal

Generally, this is caused by damage to certain components on the display board.

Please verify the working environment of the machine and check if any liquid has splashed onto the board.

If the display issue affects operation, please contact us. During the warranty period, we will provide a replacement display board free of charge, provided the damage was not caused by water ingress or liquid exposure.

Heating Not Working

- A. If the wiring is loose, an internal check of the connections between the control panel, adapter board, contactor, and heaters. Externally, check the wiring between the thermostat, contactor, and heaters. Loose wiring can be repaired by yourself.
- B. If the control components are malfunctioning, check if the heating indicator illuminates when the function is activated. Under normal conditions, you should hear a "click" from the relay and contactor on the adapter board when heating starts. Please inspect these components in order; if any step fails, the corresponding component may be damaged.
- C. If the heater is damaged, perform a visual inspection to check for any signs of physical damage. Ensure there are no abnormalities or loose connections at the joints of the heaters.
- D. If the contactor is broken, and all the above conditions are confirmed to be normal, the failure is likely due to a faulty contactor preventing the heating system from working.

The Machine Shows No Power

- A. For internal models, please confirm if the power cord has electricity using a tool like a multimeter. Check whether the connections to the power supply, adapter board, and control panel are loose or disconnected.
- B. Use a multimeter to check for a 5V power supply on the control panel. If there is no 5V power, the adapter board is broken. If 5V power is present, the control panel is broken.
- C. For external models, please confirm whether the power cable has electricity by testing it with a tool.

Weak Power

- A. Ultrasonic drive failure. Fill the tank with cleaning solution only. If the ultrasonic strength is obviously weak after 2 minutes (e.g., the water surface remains calm), test the vibration by placing your hand in the water.
- B. Dirty cleaning liquid. When the cleaning liquid becomes too dirty, the ultrasonic strength will be significantly reduced. Please replace the liquid.
- C. Incorrect placement of objects. If you feel the cleaning force is weaker after placing objects in the tank, this is often normal. Adjust the placement of the objects to achieve the best cleaning effect.

Filter Circulation System Does Not Work

- A. Control system failure. It is normal for the filter circulation indicator light to be on. When the liquid level in the auxiliary tank is higher than the sensor head, the sensor should show a continuous connection.
- B. Contactor failure. When the filter circulation contactor is activated, it is normal to hear a distinct clicking sound.
- C. Systematic check. Please inspect the components in order. If any of the above steps are abnormal, the corresponding component is likely broken.
- D. Motor failure. Ensure the motor is receiving power. If the motor is powered on but does not rotate, the motor is damaged.

For any other malfunctions or technical issues, please contact our after-sales service department or your sales representative for further detailed assistance.

Warranty Card

Single Tank Ultrasonic Cleaner			
Departure Date			
Machine Number			
Operating Voltage			
Working Current			
Rated Frequency			
Maintenance Records			
	Maintenance Plan	Replacement Parts	Caretaker
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
If any fault cannot be ruled out, please contact us in time!			



Focus on

Precision Cleaning

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