Single Tank Ultrasonic Cleaner User Manual

Contents

1 Ultrasonic Cleaning Description

Ultrasonic cleaning is a high-tech technology for removing contaminants without residues on surfaces and in hard reaching crevices. The ultrasonic cleaner uses transducers to generate sound waves; frequency ranges from 20kHz to 130kHz (20,000 cycles per second to over 100,000 cycles per second). When the sound waves travel through the liquid, millions of tiny bubbles form and burst continuously. This process is called a *"***cavitation***"* effect. The bursting bubbles scrub everywhere the liquid can penetrate and trigger huge amount of energy. Intricate surfaces and difficult access areas, such as burs, endodontic files, serrated instrument handles, and hinged instruments, are cleaned more thoroughly and rapidly.

This technology does not destroy the washed material requires no brushes or chemicals, is so active contribution to environmental protection.

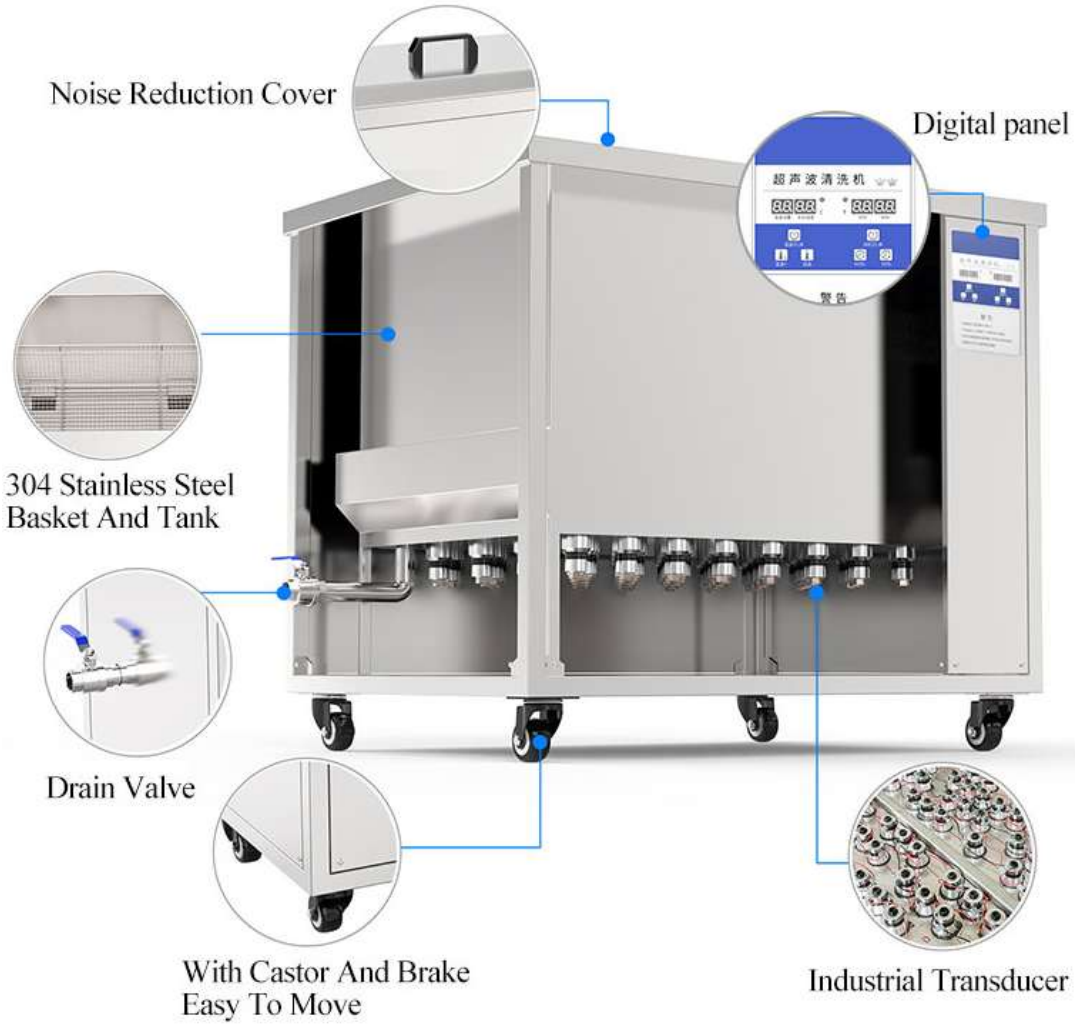

Figure 1: System Components

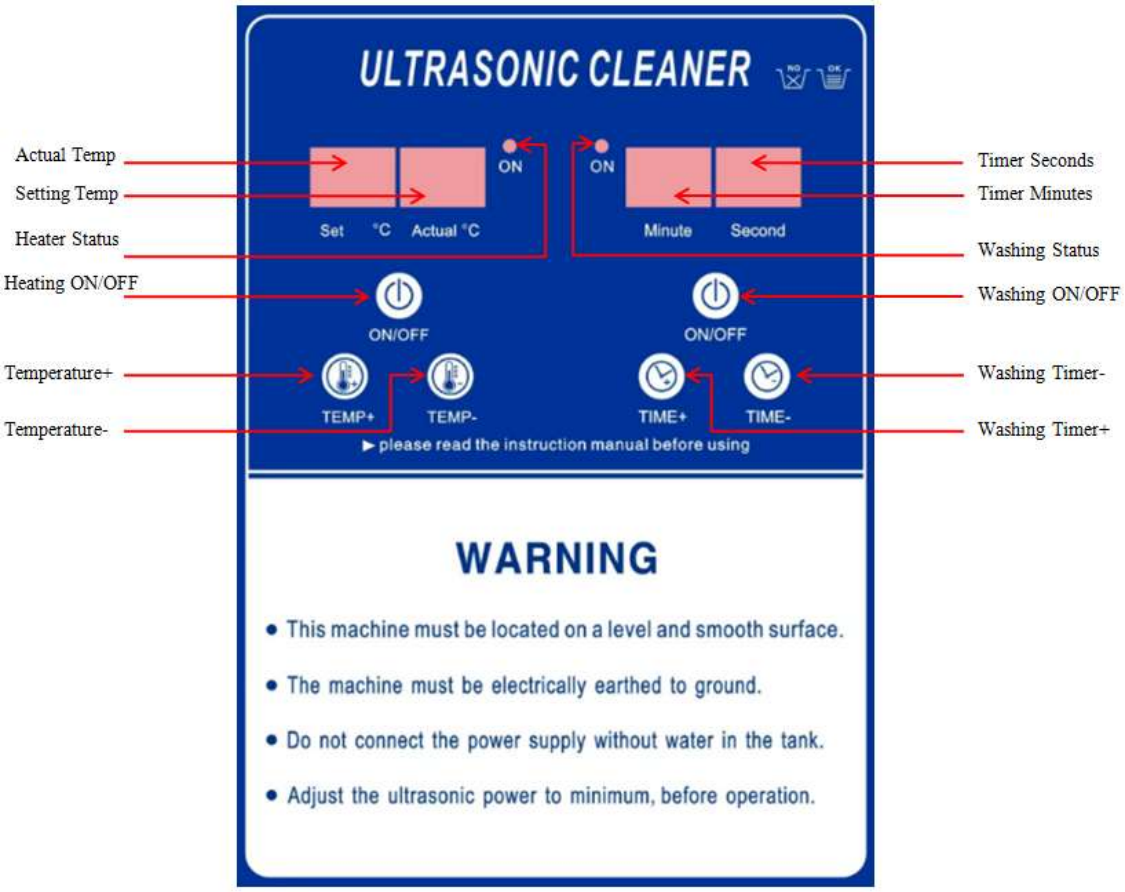

Figure 2: Control Panel

2 Industrial Ultrasonic Cleaner Specifications

Model	Capacity	Ultrasonic Frequency	Input Voltage	Ultrasonic Power	Heat Power	Tank Size (L*W*H)	Ext. Size (L*W*H)	SUS 304 Thickness
1T12	37.5L/9.9Gal.	28/40KHz	AC 240V 60Hz	600W	1500W	50*30*25cm 19.7*11.8*9.8”	68*48*55cm 26.8*18.9*21.7”	2.5mm
1T18	61.3L/16.2Gal.	28/40KHz	AC 240V 60Hz	900W	1500W	50*35*35cm 19.7*13.8*13.8”	68*53*65cm 26.8*20.9*25.6”	2.5mm
1T24	88L/23.2Gal.	28/40KHz	AC 240V 60Hz	1200W	3000W	55*40*40cm 21.7*15.7*15.7”	73*58*65cm 28.7*22.8*25.6”	2.5mm
1T30	108L/28.5Gal.	28/40KHz	AC 240V 60Hz	1500W	3000W	60*45*40cm 23.6*17.7*17.7”	78*63*65cm 30.7*24.8*25.6”	2.5mm
1T36	135L/35.7Gal.	28/40KHz	AC 480V 60Hz	1800W	4500W	60*50*45cm 23.6*19.7*19.7”	78*68*70cm 30.7*26.8*27.6”	2.5mm
1T48	175L/46.2Gal.	28/40KHz	AC 480V 60Hz	2400W	6000W	70*50*50cm 27.6*19.7*19.7”	88*68*75cm 34.6*26.8*29.5”	2.5mm
1T60	264L/69.7Gal.	28/40KHz	AC 480V 60Hz	3000W	7500W	80*60*55cm 31.5*23.6*23.6”	98*78*80cm 38.6*30.7*31.5”	2.5mm
1T72	360L/95.1Gal.	28/40KHz	AC 480V 60Hz	3600W	9000W	100*60*60cm 39.4*23.6*23.6”	118*78*85cm 46.5*30.7*33.5”	2.5mm

Figure 3: Single Tank Ultrasonic Cleaner Technical Parameters

3 Operation Procedure

- Please ensure correct power and switch connect before starting the equipment. Be careful that the control panel will be corrosive under the condition of organic, strong acid and alkaline solution.
- Keep the unit on a stable and flat working platform in dry environment.
- Keep machine on the flat floor and must be grounded
- Connect power wire and ultrasonic cable correctly.
- Put into cleaning liquid to the working surface.
- Set temperature based on requirement and turn on the power switch.
- Adjust ultrasonic power to Min., then start ultrasonic switch and adjust ultrasonic power to requirement after normal vibration.
- The ultrasonic cleaner machine has been tested before out of factory; customer can use this machine directly by adjusting power on the generator front panel.
- Do not use the product under condition of:
  - Where temperature fluctuate strongly
  - Where it has high humidity and especially dew
  - Where vibration or shock is strong
  - Where corrosive gas or dust exist
  - Where water, oil or chemicals splash.
  - Where is easy to cause explosion.

4 System Functions

4.1 Ultrasonic Generator

Ultrasonic generator outputs 28kHz / 40kHz electric power signals to supply the transducer. It is equipped with automatic frequency tracking and compensation circuits, strong anti-interference ability, and high output frequency accuracy.

4.2 Ultrasonic Transducers

It converts electrical power signals into high-frequency mechanical vibration energy. It uses high quality transducers, featuring excellent performance such as wide bandwidth, high energy conversion rate, high reliability, and high-power factor in the power grid.

4.3 Automatic Heating System

It consisting of electric heating plate, digital temperature controls, and switches, etc.

4.4 Temperature Setting

The digital screen on the left displays '50' and the actual temperature 'XX', indicating that the default setting temperature is 50°C. Each time the 'TEMP+' or 'TEMP-' button is pressed, the temperature increases or decreases by 1°C; after setting the working temperature with the button, press the 'ON/OFF' button once to start the heating element.

4.5 Time Setting

After powering on, the digital screen on the right displays '0500', indicating the default set time is 5 minutes and 0 seconds. Each time you press the 'TIME+' or 'TIME-' button, the time increases or decrease by 1 minute; after setting the desired time, press the 'ON/OFF' button to start the ultrasonic operation, and the digital timer will count down. Once the set time is reached, pressing 'ON/OFF' again will allow the machine to continue operating for the previously setting time.

4.6 Filtering Circulation (optional)

Please do not operate the filter when there is no water in the tank!

Before starting the filtration, ensure that the cleaning tank is filled with water and that the water level in the auxiliary tank is two-thirds of the auxiliary tank body. Rotate the filtration switch on the control panel; when you hear the pump operating, water will flow out of the tank. At this point, you need to add enough water to the tank to ensure the pump operates normally. Check whether the pump's rotation direction is correct; if not, you can swap any two live wires.

5 Power Supply

Please read it carefully before you connect power!

5.1 Ultrasonic Cleaner Power Supply (AC 240V three-phase, 3 wires)

Figure 4: AC 240V three-phase

5.2 Ultrasonic Cleaner Power Supply (AC 480V three-phase, 4 wires)

Figure 5: AC 480V three-phase

5.3 Ultrasonic Generator Power Supply (AC 240V, 3 wires)

Figure 6: Ultrasonic Generator Power Supply

6 Ultrasonic Cleaner Applications

Ultrasonic cleaner adopts SUS 304 stainless steel housing which is corrosion resistance and long lifespan, piezoelectric ceramic transducer, international advanced technology PCB and constant heating system to ensure the strong ultrasonic power. Widely applied for industry of electronics, painting, semi-conductor, filter system, watch-clocks, glasses, metal, jewelry, and medical instruments cleaning, etc.

Industry	Cleaning products & materials	Clear contaminant
Semi-conductor	Integrated circuit, power tube, silicon wafer, diode, lead frame, capillary, tray, etc	Debris, etching oil, stamping oil, polishing wax, dust particles, etc.
Electrical and electronic machine	Tube parts, cathode ray tube, printed circuit board, quartz parts, electronic components, telephone switching equipment, speaker components, power meter, LCD glass, core iron parts, computer floppy disk, video parts, hoop parts, head, photo die mask, etc.	Finger print, powder, cutting oil, stamping oil, iron filings, polishing materials, walnut powder, polishing wax, resin, dust, etc.
Precision machine	Bearing, sewing machine parts, typewriter, textile machine, optical mechanical device, gas valve, watches, cameras, metal filter element, etc.	Machine cutting oil, iron filings, polishing powder, finger print, oil, grease, dirt, etc.
Optical devices	Lenses, prisms, lenses, filter lenses, glass devices, films, optical fibers, etc.	Plastic, resin, paraffin, finger prints, etc.
Hardware & Machinery	Bearings, gears, steel balls, metal castings, tools, adjustable valves and cylinder parts, burners, compressors, hydraulic presses, spray guns and ultracentrifuges, municipal faucets, filters, filter elements, etc.	Cutting oil, iron filings, grease, polishing powder, finger prints, etc.
Electroplate	Plating parts, casting molds, stamping parts, etc.	Polishing iron filings, oil, black iron shell, rust, oxidized shell, iron filings, polishing powder, stamping oil, dust, etc.
Car parts	Piston rings, carburetors, fuel pumps, flow meter housings, compressor housings, measuring the bottom of rotating cranks, automotive castings, electrical components, etc.	Iron filings, polishing powder, oil, stamping oil, dust, etc
Chemical fiber	Chemical or artificial fiber nozzles, filter protectors, chemical fiber textures, etc.	Chemical colloids, glues, other solid materials, dust, etc.

Table 1: Ultrasonic Cleaner Applications

7 Functions

- Ultrasonic generator frequency: 28kHz / 40kHz
- Transducer: Convert electric power into Hi-Fi mechanical vibration energy. with broad band frequency, high power and high stability.
- Heating system: It has heating panel, digital timer and temperature switch.
- Timer: timer can be set by customer upon requirement.

■ Temperature: set temperature if need heating, range from 20 ~ 80°C (68 – 176°F)

● Ultrasonic cleaner control panel

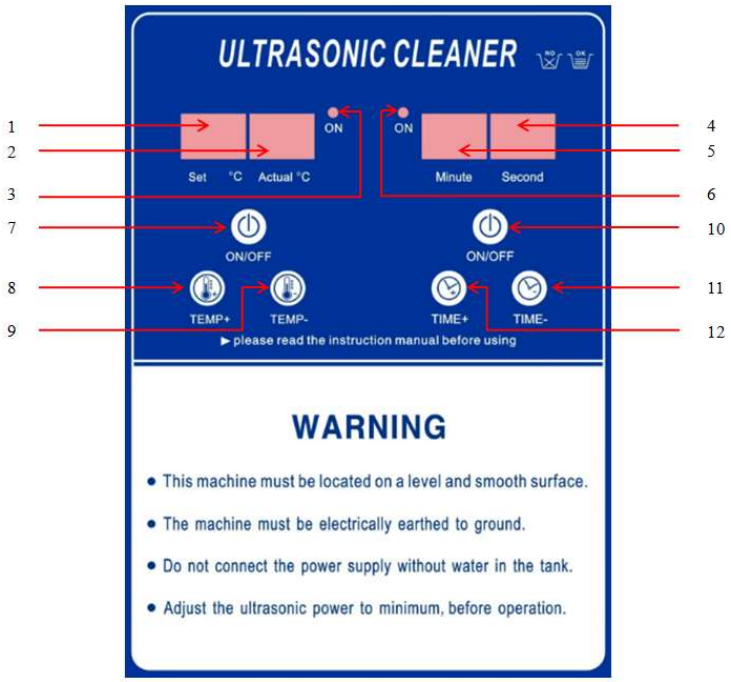

Figure 7: Control Panel

1. Setting temperature: the required temperature.
2. Actual temperature: the real time temperature of liquid
3. Temperature indicator: Turns green when heater working, auto off when actual temp reach setting temperature.
4. Timer seconds display
5. Timer minutes display
6. Ultrasonic indicator: Turns green when ultrasonic working.
7. Heater ON/OFF: press one time to start heater, press again to close heater
8. TEMP+: Press one time to increase set temp by 1 degree
9. TEMP-: Press one time to decrease set temp by 1 degree
10. Ultrasonic ON/OFF: press one time to start, press again to close
11. TIME-: Press one time to decrease working time by 1 minutes
12. TIME+: Press one time to add working time by 1 minutes

■ Ultrasonic generator control panel：

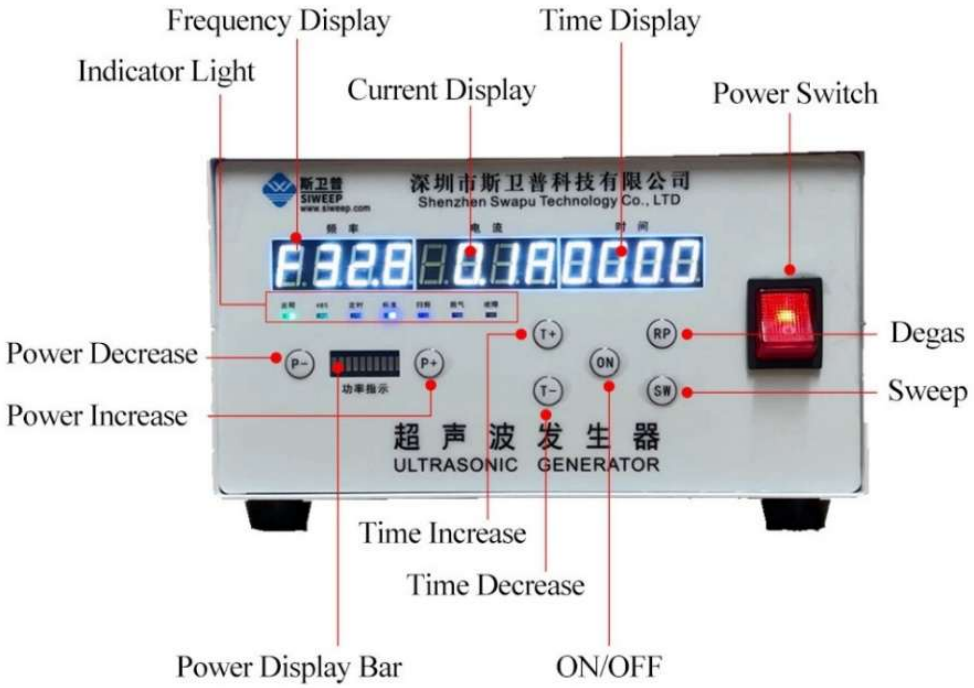

Figure 8: Ultrasonic Generator Panel

8 Cautions

- Place all buttons on “OFF” before starting.
- Cleaning liquid is ready in tank. (Empty tank working is forbidden!)
- Don’t let the liquid splash into the electronic parts, e specially transducers
- Keep the machine in dry and cool environment.
  - Ultrasonic signal output line is connected with generator back. “+” connect wire with “+”, “-” connect wire with “-”
- Ultrasonic cleaning machine power supply is 440V 50/60HZ, and should be ungrounded.
- Cover the lid to reduce noise and attention to liquid drop and evaporation.
- Wash the tank if there is much deposit in the tank
- Don’t exclude inside liquid if liquid temperature is not close to room temperature, to avoid the side tank which equip with heating pad deform.
- Don’t move the machine when there is liquid inside tank to avoid splash.
- Ultrasonic generator power supply is 230V 50/60Hz, must be ungrounded.

9 Troubleshooting

Item	Questions	Possible reasons	solutions	remark
1	No ultrasonic	A. Power supply not connect B. Fuse broken C. Cable short circuit D. Transducer short circuit E. Other reasons	Check and plug power switch Check fitted power supply and fuse Connect fitted cable or replace a new Inquiry our after-service engineer Inquiry our after-service engineer	

2	Not well cleaning	A. Not strong ultrasonic cleaning B. Too high too low liquid surface C. Too high too low temperature D. Not suitable cleaning liquid E. Other reasons	Connect ultrasonic button and adjust liquid into the best surface Adjust temperature into the most fitted Stop and switch off power supply, replace suitable liquid after the previous liquid cool down. Inquiry our after-service engineer	Suggestion 50-60℃
3	No heating	A. Heating power switch bad linkage B. Fuse broken C. C、 Other reasons	Check heating plug to correct connect Check outlet line with multi meter: If OK and resistance value is few hundreds. OHMs, then replace fuse. If not OK, it's short circuit, replace heater. Inquiry our after-service engineer	Suggestion 50-60℃
4	Temperature control failure	A. Thermostat loosens B. Thermostat tube broken C. Other reasons	Fasten the thermostat header replace thermostat Inquiry our after-service engineer	
5	Timer control failure	A. Timer knob out of control B. Timer failure C. Other reasons	Loosen or tighten the screw Replace timer or digital panel Inquiry our after-service engineer	
6	Electric leakage	A. Customer side not grounded B. Machine not grounded	To ensure grounded Check if machine earth wire loosens	
7	Other problems		Inquiry our after-service engineer	

Table 2: Troubleshooting

10 Maintenance

- Use high-pressure blast to clean dust of the control system regularly
- Clean the tank once a week at least
- Keep tank dry if don't use it for a long time
- Keep machine rests at least half an hour after continuous working 4hours.

11 Warranty

- 12 months warranty since the day of delivery.
- Free replacement part is available if any technical problem during warranty period. (Free parts not suit for problem caused by Human factor).
- Lifetime technical maintenance. Engineers provide technical support if any problem.