Ultrasonic Cleaner Manual
Chapter I  Cautions

(1) During operation, the Ultrasonic cleaner will make the liquid produce a certain temperature, and the liquid temperature produced by the liquid generally stable at around 55 °C in summer, about 45 °C in winter. If the selection of solvent cleaning, be sure to understand the ignition temperature of the solvent, the use of a flammable solvent cleaning, tank cleaning should be noted that the temperature changes, if the liquid temperature is too high ultrasonic power supply should be turned off until the temperature drop after the cleaning solvent to ensure safety; the use of a flammable solvent cleaning "can not be heated," or they might catch fire; proposals with special fire-fighting equipment around the facility or around the combustion of flammable materials can not be excited, if the conditions proposed, should use the isolation device.

(2) when the ultrasonic cleaning machine be Installed, the basic knowledge of the power and good guidance from a professional electrician are needed, a safe distribution system is required (leakage protection, air switches, etc.) which is to ensure good grounding machine, the best seal on the machine grounding; note that the delay circuit used inside of the heating circuit, the output relay will be delayed for a few seconds off (voltage 220V).

(3) The heater is installed in the slot side, when it heated, do not touch the ultrasonic tank, against hands be burned. Small machines in the level of less than 2 / 3 the height of the tank can not be heated, high power ultrasound equipment is over 1200W, if the high-power ultrasound equipment needed heating, the surface should be less than 20cm away from the notch. The end of vibration ultrasonic cleaning machine, if no heating, 5cm above the level considered safe in the scope of work, ultrasonic vibration power more than 3600W of the side of the ultrasonic cleaning machine (oscillator installed in the cleaning tank at the side of) the liquid surface within the slot from the slot Must be less than 20cm from the mouth of the boot, ultrasound is not recommended solution within the tank, heated to 80 °C above the long-term, that would shorten the life of ultrasonic cleaning machines.

Heating plate or oscillator is strictly prohibited electricity use without the case of the liquid immersion that would damage the heating plate or a vibrator.

(4) It is very important to choose the right detergent. You should determine it according to the surface attachments. Here are some kinds of detergent as follows: with the exception of agents, petroleum-derived herbicides, divide lacquer agent, carbon removal agent, to wax agent, and other organic chemical detergent. If you want to use alkali solution as cleaning solution, you must first put them into a glass container, then put the glass container in a ultrasonic slot, at the same time, put the ultrasonic slot into water, cleaning it by using indirectly way; 304 stainless steel are not resistant to acid and alkali, so, the acid, alkali solution cant not be put into the cleaning trough, for it will be corroded.
(5) If it doesn’t need to be heated, set the heating preset temperature below 10 °C to avoid operator pressing the wrong button accidentally, and lead to the errors heating. Or past a banned heating symbol on the heating button.

(6) To avoid the transducer of cleaning trough falls off for reasons of heat bilges cold shrink; The overheating detergent can not be put into the cleaning trough abruptly.

(7) Put the objects which need to be washed into cleaning baskets or the special jig (it will be better if the washed object does not touch the trough.)

Chapter 2 using method

一、Operation procedure
1. Keep the air fresh. When the machine is placed in ventilation dry area, the two sides’ ducts should be cleaned regularly.
2. When pouring the wash solution inside, the liquid should be full. Don’t operate the machine when there’s no liquid inside the groove. Without heating, the liquid level within the greater than 3cm height is ok. When heating, please according to "cautions first (3) of paragraph" use.

3. Insert the triangle of ultrasonic cleaning machines into the plug with grounding single-phase 220V + 10% of good, 50Hz ac outlet). SPECIAL INSTRUCTION: The ultrasonic equipment is call high-power when the Ultrasonic power if over 2400W. To ensure the grounding to good, the double-color (yellow green) line should put in the ground all the high-power machines of our company. When the high-power machine is needed, the power kingdom marking cable requirement larger than six square (power cable more thick). The high-power machines of our company over than 4800w are equipped with two kinds of power supply by using two road power supply: heating adopts three-phase four-wire type 380V power supply (black line for battle line, line zero), ultrasonic affected control circuit adopts 220V power supply (double lubricious "yellow green" line for the grounding line).

4. Digital ultrasonic operation schematic drawing

Press the POWER button and the machine enter setup state displayed by the screen.
A. Press the "add UP key" or "decrease DOWN keys" I on the left of the pane persistently to set the time. The time in then screen will display the change (0 SEC - 99 minutes). Press the START when finished setting, press the Ultrasonic UC button to count the time. The Ultrasonic works and will displayed in the screen. Press the KEEP WORKING if the Ultrasonic needs to persistently. Ultrasonic may keep working when then screen in on HHHH.

B. Heating sets. Press the "add UP key" or "decrease DOWN keys" I on the left of the pane persistently to set the temperature (0-90°C). Press the HEAT and the light will turn into red. Ultrasonic internal channel begin to heat. The temperature display shows groove in the actual temperature of the liquid. When the liquid temperature is higher than 90°C, temperature, and the screen shows "HH" show groove temperature is exorbitant, it need to reduce the temperature. Press the "HEAT" directly to stop heating. The speed for this machine heating is "average every 1.5 minutes / °C" temperature (25°C). As an example, if need heated to 85°C, the time needed to (85-25) °C x 1.5 minutes / °C = 90 minutes.

5. After cleaning, it need to turn off the power supply of ultrasonic cleaning machine and then can change the cleaning liquid.

6. Working conditions and using environment
   a. The altitude should not exceed 1000M; otherwise the output power will decrease accordingly.
   b. The temperature should not over 40°C.
   c. Air relative humidity is not more than 85%.
   d. Surroundings with good ventilation, not too severe corrosive mediums and no conductive, inflammable, explosive dust.
   e. The network voltage fluctuation should be continued in the ratings of 10% range.

Chapter 3 technical guidelines

A. Technical knowledge
   (1) When Ultrasonic works in the clear water without detergent, the vibration wave on the cleaning surface is smaller than that with the detergent, if you put the detergent into water, such as washing-up liquid (surfactant) the emptying time will be greatly shortened. Cleaning surface will soon have obvious vibration wave.
   (2) Ultrasonic generally in more than 25,000 Hertz, its itself the sonic the human ear is not heard (ear to hear the sound waves range is 20 ~ 20,000 hz) and ultrasonic cleaning machine voices, is due to transducer and cleaning of cylinder block and produce high-frequency mechanical friction from mechanical voice (sound that can adopt shockproof technology will sound decreases, and the ultrasonic machine adopts shockproof technology) this kind of sound to human body without damage.

B. Maintenance methods
The machine structure: the machine consists of the circuit (button board, calculated
electric circuit board, ultrasonic motherboard, Ultrasonic vibrator) ultrasonic cleaning trough, ultrasonic outside box, and the heating board.

**Removal methods:** firstly, defuse the screws which is under the machine shake hands handle(each side has one), and defuse the ball valve, open the back cover, unplug all vibrator, the heating plate and the connected plug of the circuit board, and then directly removed the internal trough from cabinet, unplug the temperature probe connections which is on the show board, separate the internal trough and cabinet, (if the machine doesn’t have back cover, you can just remove the internal trough from the cabinet directly).

**Ultrasonic cleaning machine circuit structure and maintenance method**

The machine consists of circuit boards (use AC12V security communication power), calculated electric circuit board, ultrasonic main circuit board (AC220V power, 450 ~ 600V output), ultrasonic vibrator (high frequency 450 ~ 600V voltage).

**Fault judging method**

A. Insert the power plug, and the indicator bright, press the "POWER" button, digital tube display setting time and setting temperature, if the POWER indicator does not bright, check the electric part.

B. Normal heating, but no ultrasonic cleaning machine works.

Press the "ultrasonic UC" time digital tube to start calculate, ultrasonic works normally, if non-ultrasound check calculated electric circuit, if there is communication 220V power output to ultrasonic motherboard, check whether ultrasonic motherboard insurance tube is in good condition or not, check whether the ultrasonic main board output high frequency to vibrator.

C. Ultrasonic normal without heating

   Firstly, set the temperature above 50 degrees, press the button "HEAT" and observe heating display screen, display internal trough liquid actual temperature, heating indicator red light bright, the heating plate begins to heat internal trough liquid; If no heating, check whether there is a communication 220V power output to heating plate from calculated electric, check whether the heating plate is in good condition or not.

D. Digital ultrasonic control part if for special reasons by interference, when lose control, just turn off the power supply the total power, then follow the total power supplies (of circuit can be reset) again boot.
Product features

(1) Cleaning medium
   The Ultrasonic cleaning, usually have two kinds commonly detergent: chemical solvents and water-based detergent. Cleaning medium produces is the chemistry and plus ultrasonic cleaning produces is the physical function, they can combine with full of objects so that it can wash fully.

(2) Cleaning temperature
   The cavitations' effect of Ultrasound in 30 degrees - 40 degrees is the strongest. If use of ultrasonic oil removal, except wax, for not cleaning of inflammable liquid heating will give bring better effect, general liquid heating to 50 degrees or so.

(3) Work placement way
   The cleaning effect is better if the work piece the groove swinging
   Around slowly up and down,

(4) Applicable scope
   Ultrasonic cleaning machines are widely applied in electronics, machinery, automobiles, electroplating, chemical fiber, optical, bearing industry. Such as cleaning magnetic core, nozzle, auto parts, electroplating, hardware tools, chemical fiber spinneret, optical lenses, bearings, tools, tableware, medical equipment, precision hardware, horoloe parts, gold and silver ornaments, electronic components.

Chapter 4 After sale service

1. Since the customer purchase date within two years, if users comply with regulations for storage and use machine malfunction, customers can hold product warranty card and agents open the invoice (receipt) can be directly contact with us, also enjoy after-sale service (jointly improve service efficiency) under warranty non-artificial reason if the product malfunctions problem.

2. In the following cases need to charge the fee for the company's after-sales service:
   A. The user fails to operational requirements on product specifications caused by machine failure.
   B. The irresistible force of the machine caused damage.
   C. Can not produce a warranty card, invoice or dealer, the warranty card has altered phenomenon.
   D. The machine has exceeded the warranty period.

Chapter 5 Packing list

* Ultrasonic cleaners 1
* instruction（warranty card and certificate） 1