ULTRASONIC CLEANER

USER MANUAL

FEATURES

Die casting stainless steel tank

Industrial grade integrated circuit

0~80℃ temperature range

1~99 minutes working time

Degassing and degreasing function

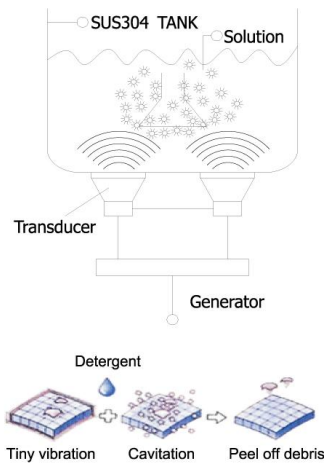33KHz for gross rinse and 40KHz for intensive rinse

Power sweep to prevent ultrasonic fatigue

Auto Stand-by, Sleep, and wake up by one key-press Mode

Digital controller of high-precision and a long service-life

Thank you for purchasing this ultrasonic cleaner. Please take some time to read these operating instructions before use and keep them for future reference. Failure to follow these instructions may lead to serious artificial damages to the product.

ULTRASONIC PRINCIPLE

Ultrasonic cleaning is based on the cavitation effect caused by high frequency ultrasonic wave vibration signal in the fluid. Microscopic bubbles are formed, and then implode violently causing the cavitation which create an intense scrubbing action on the surface of the item being cleaned. The bubbles are small enough to penetrate microscopic crevices, cleaning them thoroughly and consistently.

Ultrasonic cleaning is extremely effective at removing dirt and grime which would normally require tedious manual cleaning by hand. It has been used to clean a wide variety of instruments and mechanical parts such as carburetors, returning them to almost "like new" condition without damage to delicate parts.

PREPARATION:

1. Carefully unpack the cleaner, remove all packing materials and check whether any parts have become loose or damaged during transit.

   Contents:

   a: Main machine   b: Sound proof lid   c: Power lead

   d: Outlet filter   e: Mesh basket (Optional)   f: Manual

2. Place the cleaner on a flat, clean surface and ensure that the cooling fan will get adequate ventilation, and that all controls are set to off, and the drain tap is closed.

3. Ensure that the power lead is securely plugged into the cleaner, and that no part of the lead is likely to contact with moisture.

4. Carefully fill at least 7cm depth of the tank with a solvent solution. Based on cleaning requirements, we recommend to use a small amount of cleaning solution because this will help increase the cleaning performance. Now the cleaner is ready for use.

⚠ **Attention**

A) While the machine is working normally, the syntony of the ultrasonic wave and tank gives a well-proportioned sound with no shudder on the surface of the water but sprays generated by the tiny bubbles. If there are discontinuous surges, please add or reduce a little of washing solution in the tank to stop the surges, which is good for get a better cleaning effect.

B) Please don't make the machine work for a continuous long time (not more than 60 minutes) as possible as you can because a long-time working will raise the temperature of the case, accelerate the burn-in process of inner electronic components and parts.

SAFETY PRECAUTIONS

Keep it away from children !

⚠ This device can not be used by individuals with limited physical knowledge, or the mental disabled, or those lacking experiences or knowledge, such as children, unless they are supervised by an individual who can take charge of their safety or have received training in operating the device .

⚠ **Please read the following items very carefully as failure to comply with them may invalidate your guarantee**

1) DO NOT run the cleaner continuously for more than one hour at a time because it can damage the internal components.
2) DO NOT operate the unit without fluid in the tank. Always ensure that the fluid is no higher than the max mark and no lower than the minimum depth of 7cm.
3) DO NOT drop any item into the tank because it may damage the transducer. Always place items gently into the tank and use the basket whenever possible.
4) The more items you place in the cleaning bath, the less cleaning efficient you can get. Leaving enough spaces among items rather than overlapping them is recommended.
5) Do keep the lid on during use. This will prevent splashes and reduce evaporation of the fluid.
6) Never immerse the machine or power cord in water or other liquid.
7) DO NOT touch the power plug with wet hands, especially when inserting or removing the plug.
8) DO NOT touch the unit if the machine has fallen into water during operation. Remove the power plug from the socket firstly.
9) DO NOT disassemble the machine if you are not professional.
10) UNPLUG the power source while filling or emptying the tank.
11) DO NOT spray water or liquid over the device and the control panel.
12) DO NOT operate the cleaner without proper grounding.
13) DO NOT place the device on a soft surface where the vents can be blocked.
14) Always turn the heater off after using as leaving it on can make the fluid evaporate and damage the internal components.
15) Take care when adding or removing items from the cleaning tank as the splashed fluid is likely to be hot and damage the internal components. Any splashed fluid must be dried immediately.
16) In case of emergency or failure to follow the aforementioned items, disconnect the mains supply by removing the plug from the mains socket.
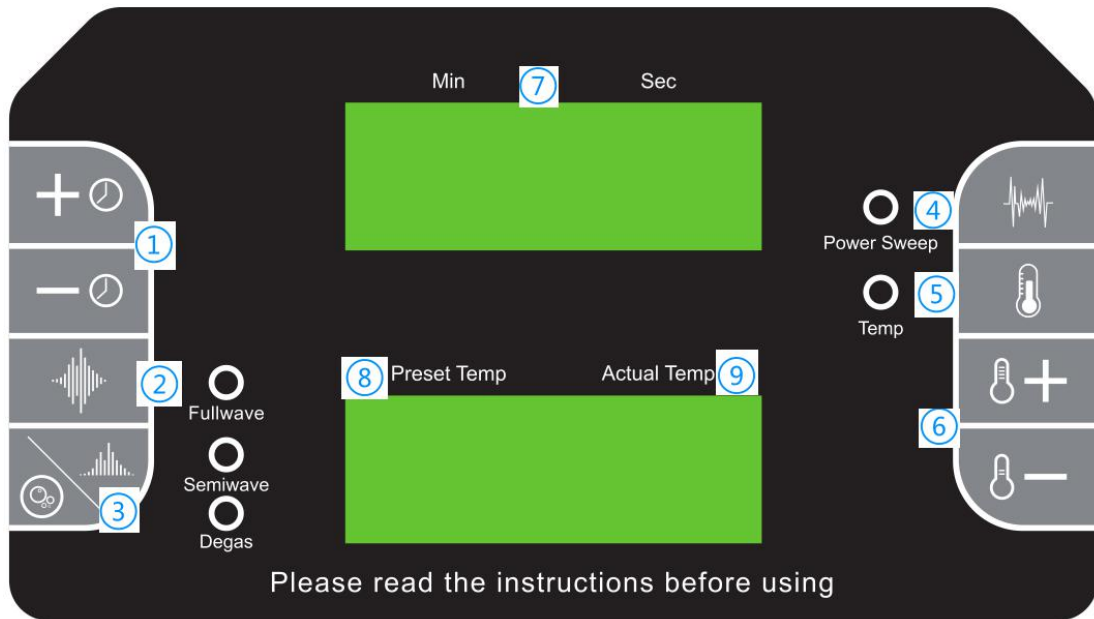
APPLICATIONS

This list is almost endless. Provided the product is non porous and can normally be immersed in water, they can be thoroughly cleaned. Here are some examples:

- Jewelry especially gold, silver & platinum
- Watchstraps
- Coins and other collectibles
- PCB Boards etc
- Engine/Model parts
- Toothbrushes & Dentures
- Electrical components
- Make-up cases
- Diesel injection pumps
- Printer heads and toner cartridges
- Motorcycle radiators
- Vehicle differentials
- Milking parlor equipment
- Golf clubs&grips&golf balls
- Horse bits&stirrups &horse brasses
- Tattoo needles
- Surgical equipment
- Motorcycle engine crank cases
- Engine cylinder heads
- Turbochargers
- Bicycle derailleurs
- Knives, bayonets and other militaria
- Gun and gun components

Ultrasonic cleaning is not recommended to be used to clean the following gemstones: Opal, Pearl, Emerald, Tanzanite, Malachite, Turquoise, Lapis and Coral.

■ CONTROL PANEL

Please read the instructions before using

① Ultrasonic Time Control "+" and "-"

② Ultrasonic frequency 40Khz (Fullwave): For blind holes cleaning

③ Ultrasonic frequency 33Khz (Semiwave) : For surface cleaning
   Degas function: If you press switch 2 times, it will start degassing

④ Power sweep: 33Khz & 40Khz, Is used to prevent ultrasonic fatigue if long time ultrasonic in only one frequency.

⑤ Heating Switch

⑥ Temperature Control "+" and"-"

⑦ Ultrasonic Time Display

⑧ Preset Temperature Display

⑨ Actual Temperature Display

OPERATION

1. Fill the stainless steel tank with cleaning solution; Plug the power lead into grounded outlet; After power-on, the temperature displays the actual environmental temperature, LED displays 3 minutes (default ultrasonic time).

2. **Time setting:** Press the "**TIME+/TIME-**" shortly at a time means time increase/reduce 1min at a time, press and hold time switch continuously will increase/reduce by 10mins.   The cleaning stops when the timer counts down to 00:00. If the unit needs to be stopped before the timer runs up, press "Ultrasonic frequency" button.

> NOTE: Do not run the cleaner continuously for more than one hour

3. **Temperature setting:** Press "**temperature+/temperature-**" shortly at a time means time increase or reduce 1℃ at a time, press and hold time switch continuously will increase/reduce by 10℃ . Usually, the best cleaning temperature is within 40℃ to 60℃.

4. After time and heat setting, press "Heating" or "ultrasonic" button to start both function. If press the "ultrasonic " again , the ultrasonic function will stop , and the heating function will stop at the same time. If want to keep heating, need to press " heating" button again.

5. **Degas mode**: work intermittently，i.e., 6s "ON" + 2s "OFF" working mode. It can clean items deeply and efficiently.

6. Empty the tank and clean both the outside and inside of the cleaner with a clean and dry cloth for next use.

> NOTE: Do not pour water out until it's cooling, because of hot water will hurt you and also empty burn will damage the machine itself.

DIFFERENT WAYS OF CLEANING

Gennral Cleaning—use only water to clean under the temperature of about 50℃;
Enhanced Cleaning—add few drops of standard cleaning solutions, liquid soap, or detergent, or any other non-acidic cleaning agents.
Extensive Cleaning--removing tarnish, carbon & rust from non-plated metals, it is recommended to use specific cleaning solution associated with ultrasonic cleaners.

> **WARNING** : Strong acid or alkaline cleaning solution will cause corrosion, rust and even puncture of tank or machine body. To solve this problem, please dilute the solution to mild PH or use a special tank made of a specific-graded stainless steel, For example: use SUS304 tank.

The cleaning solution will deteriorate in effectiveness over time and use. It is important to regularly change the fluid and carefully wash the inside of the cleaning tank in order to preserve the effectiveness and longevity of the cleaner.   Do not use corrosive or abrasive cleaning tools to clean the tank which must be wiped down and dried before it can be re-connected to the electrical supply.

NOTE: If the machine starts to spark, smoke, smell of burnt electrics or displays any other fault the operator must immediately stop the machine, and isolate it from the electrical supply and contact the supplier. It is dangerous to use it after that.

Advantage

Ultrasonic is widely used throughout industries to remove difficult contaminants from the parts during or after manufacturing process which might require a stage of cleaning before the next process. In general, if an item can be cleaned with liquid, it can be cleaned much faster and more thoroughly with an ultrasonic cleaner. Compared with traditional solvent/scrubbing, our ultrasonic cleaners:

- Are more effective at removing contaminants;
- Are quicker to get a good cleaning effect;
- Save labor time of employees (and subsequent labor cost);
- can heat the cleaning solutions to a suitable cleaning temperature so as to enhance the cleaning efficiency;
- Have a digital controller of high-precision and a long service-life;
- Are of high performance;
- reduce chemicals in the cleaned stuffs;
- Are environment friendly because of its recyclability.

For Better cleaning effect:

- Immerse the cleaned stuffs well into the water.
- Add a small amount of cleaning solution is added.
- Make sure that there is enough space around each stuff in the tank. The more stuffs you place in the tank, the less efficiency you can get. It is not advised to overlap stuffs because the ultrasonic cleaning system can not work well with layered stuffs.
- Use a basket. Do not put stuffs directly into the bottom of the tank because that is harmful for the inner tank. So it is better to use a suitable basket. Especially a metal basket only absorbs about 8% ultrasonic energy.
- Choose a suitable temperature: Generally, the higher the temperature is, the better cleaning effect the ultrasonic cleaner can make. However, when temperature exceed 70℃～80℃, cleaning effect will be affected. So the best temperature we suggest is 40℃～60℃.

SPECIFICATIONS

Model	Tank Size (mm)	Overall Size (mm)	Volume (L)	Power (W)	FREQ. (KHz)	Heating (W)	Time (mins)	Temp. (℃)
DK-300PF	240×140×100	270×170×240	3.2	120		100	1-99	0-80
DK-400PF	300x155x100	312x162x218	4.5	120		100	1-99	0-80
DK-450PF	300x155x100	312x162x218	4.5	180		100	1-99	0-80
DK-600PF	300×155×150	330×180×310	6.5	180		300	1-99	0-80
DK-1000PF	300×240×150	330×270×310	10	240	33/40	300	1-99	0-80
DK-1500PF	330×300×150	360×330×310	15	360		400	1-99	0-80
DK-2200PF	500×300×150	550×330×310	22	480		500	1-99	0-80
DK-3000PF	500×300×200	550×330×360	30	600		500	1-99	0-80

H: 0-80 ℃ temperature range

T: 1-99 minutes working time

D: Digital display

CE FC RoHS