

**YUNYISONIC**

Devoted To The Laboratory Analysis Field  
Provide Scientific Research & Experiment Solutions  
**[www.yunyisonic.com](http://www.yunyisonic.com)**

# Multi-Function Ultrasonic Bath Manual

Sound Reduction / Pulse / Sweep / Degas / Adjustable Power

**17/20/25/28/33/40/68/80/120/132/200Khz**

Customizable with 485 port or I/O for PLC system interfacing

Low Frequency, High Frequency, Two Frequency  
Three Frequency, Four Frequency

Power adjustable & Visualization of power,  
frequency, and current

Easier recording of experimental data



## Application

Assisted Cleaning Washing Defoaming Dispersion Extraction Emulsification  
Homogenization Purification Separation Mixing Dissolution Solubilization

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# Foreword

Thank you for choosing Yunyisonic!

## **Yunyisonic YL Series Multi-Function Laboratory-Assisted Ultrasonic Cleaner**

The Yunyisonic Ultrasonic Cleaner began as a traditional ultrasonic bath designed for the cleaning of parts, initially focused on standard cleaning tasks.

Over time, it has evolved into advanced process equipment that uses ultrasonic energy for a wide range of applications beyond cleaning and washing, such as degassing, extraction, purification, emulsification, and homogenization.

Today, the **Yunyisonic YL Series Laboratory Multi-Function Ultrasonic Cleaner** takes this evolution to the next level. It assists in scientific research and experimental analysis across multiple fields—from dispersion, separation, and defoaming, to dissolution, solubilization, mixing, and cell lysing, among others.

Designed to optimize everything from routine sample preparation to complex biochemical experiments, this all-in-one solution delivers precise, rapid results, making breakthroughs in materials science and biological research more achievable than ever before.

The YL Series **Laboratory Ultrasonic Cleaner** represents the latest generation of products utilizing advanced technology for a variety of laboratory applications, which is the ideal choice for researchers and lab professionals looking to advance their work while ensuring the highest standards of cleanliness, accuracy, and efficiency.

This Operating Manual is part of the documentation set for this system, and should be kept with the equipment.

Thank you again for choosing YUNYISONIC!

## **Manual Updates**

Yunyisonic Shenzhen Co., Ltd. continuously improves the circuits and components of the equipments to maintain its leading position in the field of ultrasonic cleaning and related technologies. Once these technological advancements have passed through a thorough testing procedure, they will be implemented in production. Therefore, when contacting our after-sales support regarding a specific component, please provide the equipment code located on the plate on the back of the equipment.

## **Introduction**

This manual is arranged into several structured chapters which will help you find the information you may need to know to safely handle, install, set up, program, operate, and/or maintain this product. Please refer to the Table of Contents and/or the Index of this manual to find the information you may be looking for. In the event you require additional assistance or information, please contact our Product Support department.

## **Overview of Ultrasonic Cleaning Technology**

Ultrasonic cleaning is a type of physical cleaning closely related to the development of modern science and advanced manufacturing industries. The cleanliness achieved by ultrasonic cleaning depends on three main factors: the cleaning process, cleaning medium, and cleaning machine, contributing 30%, 30%, and 40%, respectively, to the overall cleaning effectiveness. If ultrasonic cleaning efficiency is 100%, then brushing, steam cleaning, solvent pressure cleaning, and soaking have cleaning effectiveness rates of 90%, 35%, 30%, and 15%, respectively. Therefore, ultrasonic cleaning is widely regarded as the most efficient and effective, achieving more than 98% cleaning efficiency and the highest cleanliness levels. As a result, industries that require high cleanliness standards have widely adopted ultrasonic cleaning. Compared to traditional cleaning methods, ultrasonic cleaning has several notable advantages, such as high cleaning quality, speed, minimal damage to workpieces, fewer residues remaining after cleaning, water resource conservation, and easy automation.

## **Overview of Ultrasonic-Assisted Laboratory Applications**

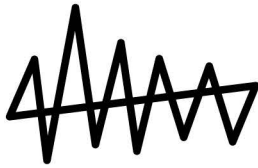
Yunyisonic Shenzhen Co., Ltd. is a leading ultrasonic equipment manufacturer.

Yunyisonic YL Series Ultrasonic Bath is designed to empower laboratory excellence. It is a general term for many kinds of instruments that can pre-treat experimental samples including solids and liquids by ultrasonic cavitation effect. It can be used to break up many kinds of cells, viruses, animals, and plant tissues, it can be used for emulsification, dispersion, separation, homogenization, extraction, defoaming, mixing, washing, cleaning, preparation of nano-materials, acceleration of chemical reactions and dissolution of solid particles and widely used in biology, medicine, agronomy, chemistry, materials science, pharmaceutical and other fields of teaching, research, production.

## Yunyisonic YL Series Laboratory Ultrasonic Bath Advantages



### 1 Sweep Frequency Adaptive Technology for No Blind Spots in Cleaning



#### Sweep Frequency Technology

Sweep is used to improve the structure of the sound field, addressing uneven standing wave fields within the bath tank ensuring uniform cleaning, then brings a strong cleaning effect without blind spots. It guarantees that every batch of cleaning operations produces consistent and stable results.

### 2 Sound Reduction



#### One major drawback of ultrasonic cleaner is the noise it generates when it works.

One major drawback of ultrasonic cleaner is the noise it generates when it works. Yunyisonic YL Series Laboratory Ultrasonic Assisted Bath combines two methods to effectively reduce noise, making it softer and less harsh. First, noise-absorbing cotton is added to the bottom, end, and sides of the cleaning tank, which helps absorb some of the sound. Second, the full-bridge piezoelectric circuit board and the transducer are highly matched, so the electric vibration frequency is lower than the system's natural frequency. This prevents the system from generating resonance noise caused by the movement of the medium in the tank and the agitation of the cleaned objects. It effectively reduces unwanted noise.

### 3 Advanced Circuit Boards And Well-Matched Transducers, Low Heat Generation









#### Prevents Liquid Overheating

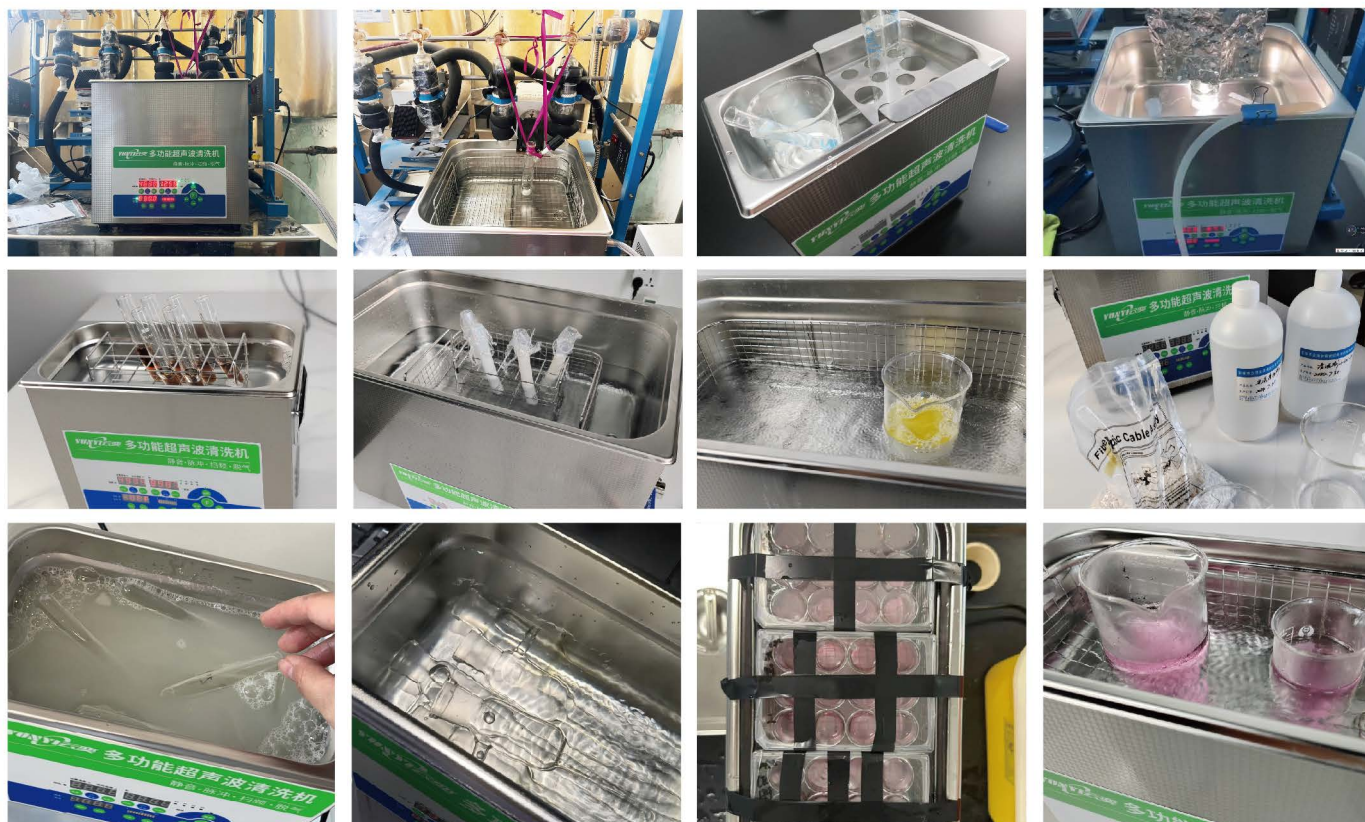
During long periods of operation, ultrasonic waves can heat the cleaning solution. Yunyisonic YL Series Ultrasonic Assisted Equipment uses a full-bridge piezoelectric circuit board and well-matched transducers, reducing heat buildup, minimizing the temperature increase of the cleaning solution, ensuring stable performance during long-term operation and longer equipment lifespan.

## Scientific Research and Laboratory Experiments Applications

Yunyisonic YL series ultrasonic assisted equipment offers innovative ultrasonic technology solutions that support a wide range of laboratory applications and research fields, covering diverse industries such as universities, bioengineering, healthcare, food engineering, new materials research, environmental protection, and agriculture, including biological sample processing, equipment cleaning, and material synthesis.

No.	Industry Application	
1		<b>Ultrasound Assisted Biological Sample Processing</b> Ultrasonics efficiently break cell walls to extract DNA, RNA, proteins, or prepares cell extracts. It also supports cell dissolution, nucleic acid extraction, and biological and chemical pre-treatment tasks like emulsification, dispersion, separation, homogenization, defoaming, dissolution, and mixing.
2		<b>Cleaning Laboratory Equipment</b> Ultrasonics thoroughly clean laboratory tools such as glassware, flasks, beakers, test tubes, centrifuge tubes, cell culture dishes, and PCR plates to improve the cleaning process and significantly save laboratory operation time, and ensure precise and pollution-free laboratory experimental research environment.
3		<b>Ultrasound Assisted Extraction (UAE) of Natural Pigment Spice Food Colorants</b> Ultrasonic waves break plant cell walls and facilitate the dissolution of natural pigments and bioactive ingredients into solvents, achieve easy and efficient ultrasonic assisted extraction (UAE) for bioactive components from plants and food, pigments, and essential oils, enhancing purity and yield.
4		<b>Ultrasound Assisted Catalytic Activation</b> Ultrasonic technology enhances fermentation processes, activating and promoting the release of yeast, enzymes, and nutrients, boosting the quality and yield of beverages and fermented foods products.
5		<b>Ultrasound Assisted Synthesis</b> Ultrasonic waves enhance reaction efficiency through mixing diverse materials and dispersion components, aiding in the creation and development of composite or innovative or new materials for advanced research application.
6		<b>Ultrasound Assisted Environmental Solutions</b> Ultrasonic waves accelerate pollutant degradation and degradation in wastewater treatment, improving treatment efficiency. It also assists in removing and degrading pollutants during soil remediation. For example, the immersible ultrasonic transducer pack vibration bar, rod and plates are used to remove algae from lakes or rivers.

## Yunyisonic Cleaner Case Studies



## Daily Maintenance

- Keep the shell clean regularly
- Remember to check the tank for contamination
- Keep your ultrasonic cleaner in top-notch condition

## Installing Your Unit and Setup

Check the nameplate on the back of the cleaner for correct power requirements. Position your cleaner within easy reach of a standard grounded electrical outlet. Do not place the cleaner on a circuit which could become overloaded. If your cleaner does not operate correctly, first refer to the troubleshooting section for possible causes, or contact our service team.

## Optimizing Your Ultrasonic Bath

Follow these recommendations to optimize your Ultrasonic Bath unit.

Item	Maintenance
Tanks Cleaning	Check the tank for contamination whenever you change solution. If necessary, remove contaminants with a nonabrasive cloth and water.
Emptying	Always unplug the cleaner before emptying the tank. Empty the solution into a waste disposal unit.
Filling	Always unplug the line cord before filling the tank. Fill the cleaner to the operating level (placing beakers/solid trays), using tap water.
Low Solution level	Will cause the cleaner to fail. When you remove heavy or bulky loads from the cleaner, the solution level may drop below the operating level. If so, be sure to replace lost solution and degas, if necessary, depending on the amount used.
Overload	Do not rest any items on the tank bottom. Weight on the tank bottom dampens sound energy and will cause damage to the transducer. Instead, use a tray and /or beaker positioning cover to support all items. Allow at least 2.5cm (1 inch) between the tank bottom and the beaker or other containers receptacle for adequate/sufficient cavitation.
Covers	When not in use for extended periods, cover the tank to prevent dust and speed up the heating. If a slower temperature rise is required, do not use a lid or cover to avoid overheating.

### Safety Precautions

Before using your ultrasonic cleaner, please read and thoroughly understand these warnings.

#### Failure to follow them will void your warranty.


- To prevent serious personal injury and / or property damage
- To avoid electrical shock
- To prevent damage to the unit



- Do not operate the machine when the tank is dry.
- Do not place parts or containers directly on the bottom of the cleaning tank; use a tray or wire to suspend items; failure to comply may cause transducer damage.
- Do not use flammable, explosive, or corrosive cleaning solutions, as this may lead to fire, explosion, or machine damage.
- Do not allow the solution to drop below the operating level line (1/2 of the tank's height) with heat or ultrasonics on.
- If warm water is added to the tank, do not allow temperature to exceed 80°C.

## Troubleshooting

- If your tabletop ultrasonic cleaner is not operating properly, please refer to the table below to identify potential causes of the issue before contacting our customer service team.

Caution	General Warning
	<ul style="list-style-type: none"> <li>• Danger! High voltage inside—Be careful of electric shock.</li> <li>• Please don't disassemble or repair the tabletop ultrasonic cleaner without authorization.</li> </ul>

NO.	Problems	Possible causes	Solutions	Remarks
1	No ultrasonic	A.Power supply not connect B.Fuse broken C.Cable short circuit D.Transducer short circuit E.PCB Board broken F.Other reasons	A.Check and plug power switch. B.Check the fitted power supply and change the same specification fuse. C.Connect fitted cable or replace a new. D.Inquiry our after service engineer. E.Check the broken part and replace it. F.Inquiry our after service engineer.	
2	Time control failure	A.Timer knob out of control B.Timer failure C.Other reasons	A.Loosen or tighten the screw. B.Replace timer or digital panel. C.Inquiry our after service engineer.	
3	No heating	A.Heater power switch linkage. B.Fuse burn outl. C.Heating pad burn out. D.Digital display board out of control E.Other reasons	A.Check heating plug and connect well, check outlet line with multimeter: if ok and resistance value is few hundred OHMS. B.Change the same specification fuse. C.Replace the bad heating pad if open circuit. D.Check the broken part and replace it. E.Inquiry our after service engineer.	Suggeation 50-60°C
4	Temperature control failure	A.Thermostat loosen. B.Thermostat tube broken. C.Digital display of control. E.Other reasons	A.Fasten the thermostat header. B.Replace thermostat. C.Check the broken part and replace it. D.Inquiry our after service engineer.	
5	Not well cleaning	A.Not Strong ultrasonic cleaning. B.Too high too low liquid surfacel. C.too high too low temperature. D.Not suitable cleaning liquid. E.Other reasons	A.Connect ultrasonic button and adjust. B. Adjust liquid into best urface. C.Adjust temperature into the most fitted. D.Stop and switch off power supply, replace suitable liquid after the previous liquid cool down. E.Inquiry our after service engineer.	Suggeation 50-60°C
6	Electric leakage	A.Customer side not rounded. B.Machine not grounded.	A.Make sure the wire. B.Check if machine earth loosen.	
7	Other problems	Consult customer service		

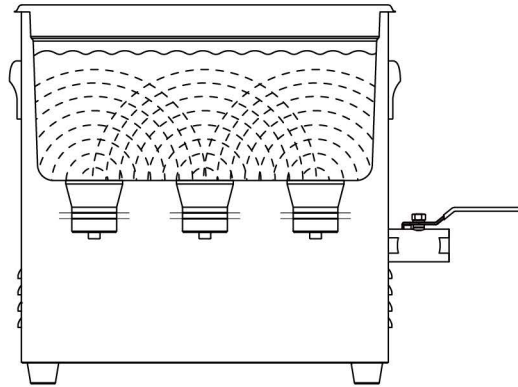
## Ultrasonic Working Principle

Ultrasonics typically refer to sound waves transmitted at frequencies beyond the human hearing range.

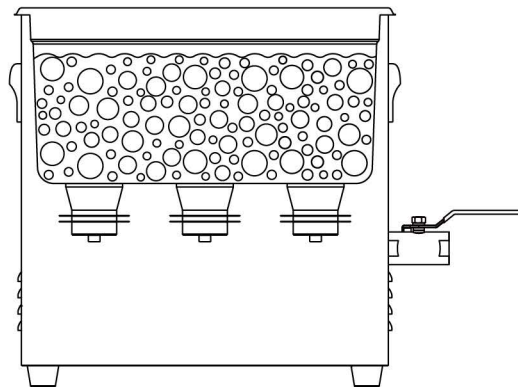
In a ultrasonic cleaning equipment, ultrasonic waves are used to clean workpieces and materials, as well as to disperse, dissolve, mix, emulsify, and degas particles in liquids.

The working principle of ultrasonics is as follows:

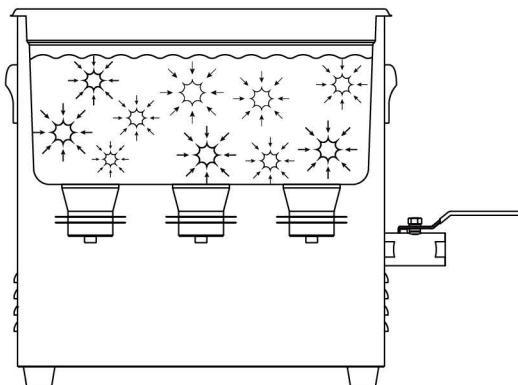
- The ultrasonic waves emitted from the transducer radiate through the solution in the tank in an alternating pattern of dense and sparse waves. This causes the liquid to flow and generate countless tiny bubbles. When the sound pressure reaches a certain threshold, the tiny bubbles (cavitation nuclei) in the liquid are subjected to alternating positive and negative pressures, creating fluctuating gas pressures.



- During the high and low-pressure phases, millions of tiny bubbles rapidly grow and then suddenly collapse. The localized high temperatures and high pressures generated at the moment of bubble collapse weaken the intermolecular forces of insoluble contaminants, dispersing them into the liquid. The vacuum bubbles continuously grow, collapse, and disappear in a repeating cycle, a process known as "cavitation."



- Ultrasonic cleaning relies on the "cavitation effect" of ultrasonic waves. When workpieces are fully immersed in the cleaning solution, the continuous and omnipresent cavitation impacts throughout the liquid are equivalent to many tiny brushes cleaning from all directions without gaps. Due to its high practicality and wide range of applications—ranging from cleaning mechanical parts to semiconductor devices—ultrasonic cleaning is often referred to as "brushless cleaning."



- Ultrasonic energy is also widely used in laboratories to enhance processes such as dissolution, mixing, dispersion, emulsification, extraction, degassing, and defoaming.

## Cleaning Methods

There are two methods of cleaning - direct and indirect. Each has advantages and disadvantages. When in doubt, run test samples using both methods to decide which one produces the best results for you:

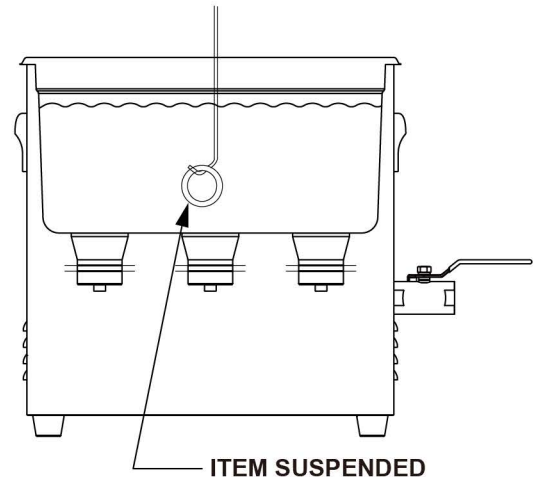
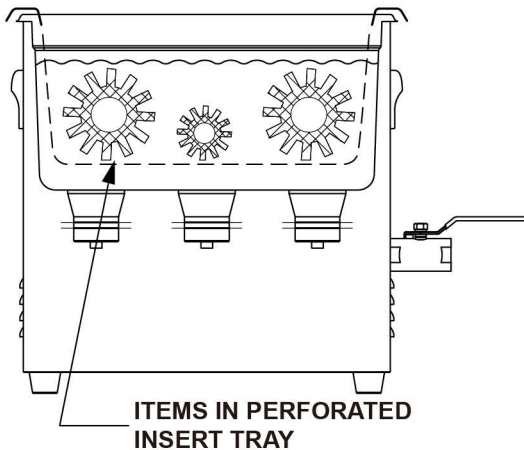
### Direct Cleaning Method

#### How it works:

1. Fill the tank with warm water and a cleaning solution. Ensure the liquid is above 1/2 capacity, with an optimal level at about 3/4 capacity
2. Place the items to be cleaned in a perforated tray and lower them into the tank. You can also suspend items on a wire and then immerse them in the solution

#### Advantages of Direct Cleaning:

1. Easy to operate
2. Significant cleaning effectiveness



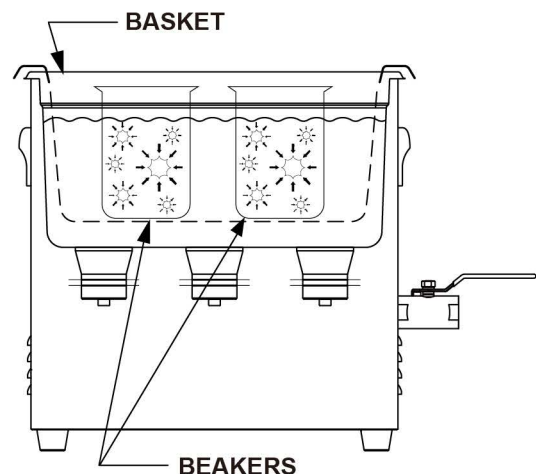
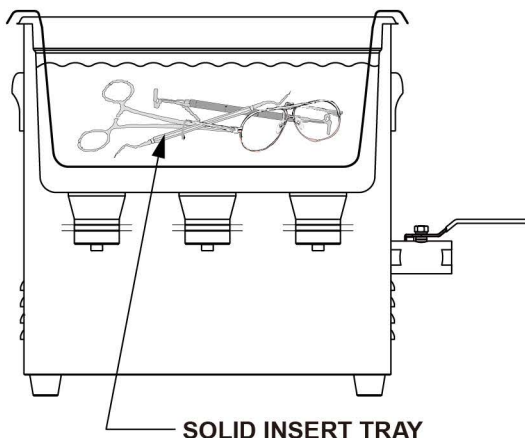
### Indirect Cleaning Method

#### How It Works:

1. Fill the tank with tap water or diluted cleaning solution until it reaches the water level line after adding items and accessories. Ensure the liquid is above 1/2 capacity, with an optimal level at about 3/4 capacity
2. Pour the solvent into a solid tray or several beakers
3. Place the solid tray and beakers into the cleaning basket, ensuring that the tray and beakers do not come into direct contact with the bottom of the tank

#### Advantages of Indirect Cleaning:

1. Soil removed stays in the beaker or tray so you can easily examine, filter or discard it
2. You can use one or more solutions at the same time
  - two completely different cleaning solutions
  - one beaker or tray with a cleaning solution and one with a rinse solution
3. Cleaning solution in your tank needs to be changed less often



# Non-Cleaning Ultrasonic Assisted Applications in Labs

Ultrasonic indirect cleaning assisted ultrasound applications in labs. This method can be used for sample preparation, including degassing liquids, emulsification, homogenization, dissolving solids, solubilization, cell lysing, and dispersion of powder or particles or nanomaterials. It supports the disruption of various biological samples, such as plant and animal tissues, viruses, cells, and bacteria. Additionally, it aids in solid-liquid mixing, separation, dispersive liquid-liquid extraction, defoaming, as well as accelerating chemical reactions.

## How It Works:

- 1.Fill the tank with water and wetting agent. The tray or beakers can be filled with any amount of solution as long as the water in the tank outside the tray or beakers reaches the water level line. Ensure the liquid is above 1/2 capacity, with an optimal level at about 3/4 capacity
- 2.Place the beakers in a beaker positioning cover, an insert tray or an insert basket to fit your unit, or place the beakers and flasks onto a support rack. Beakers should not touch the tank's bottom

1 nanometer (nm) = 0.001 micrometer (µm).

1 meter (m) is equivalent to 0.001 millimeter (mm), or one-tenth the diameter of a human hair.

## Frequency and Particle Size Relationship

Frequency	Particle Size
17~28KHZ	Larger than 5µm(5µm=5000nm)
33~53KHZ	2~100µm(2000~100000nm)
68~80KHZ	1~5µm(1000~5000nm)
120~200KHZ	0.1~3µm(100~3000nm)

## Frequency Overview

The most widely used ultrasonic cleaners across various industries are those that operate within the low to mid-frequency range (17-53kHz), followed by high-frequency cleaners (68 - 200 kHz), and then megahertz (MHz) cleaners.

## Laboratory Application Scenarios

### Advantages of High-Frequency Ultrasonic Cleaner:

**Assisted Cleaning:**

Avoid causing damage to the surface of the items to be cleaned.

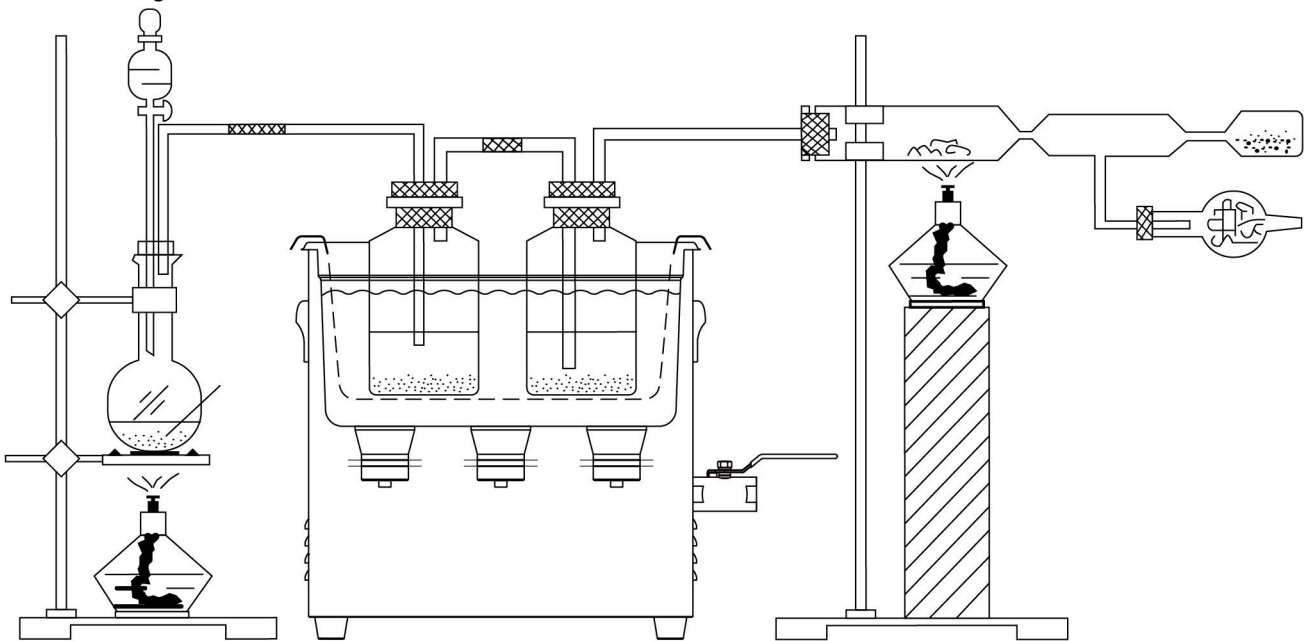
Precisely remove tiny particles and dirt adhered to the surface of the workpieces.

**Assisted Laboratory:**Effectively disperse, promote dissolution, mix, degas, and gas-phase samples pre-treatment.

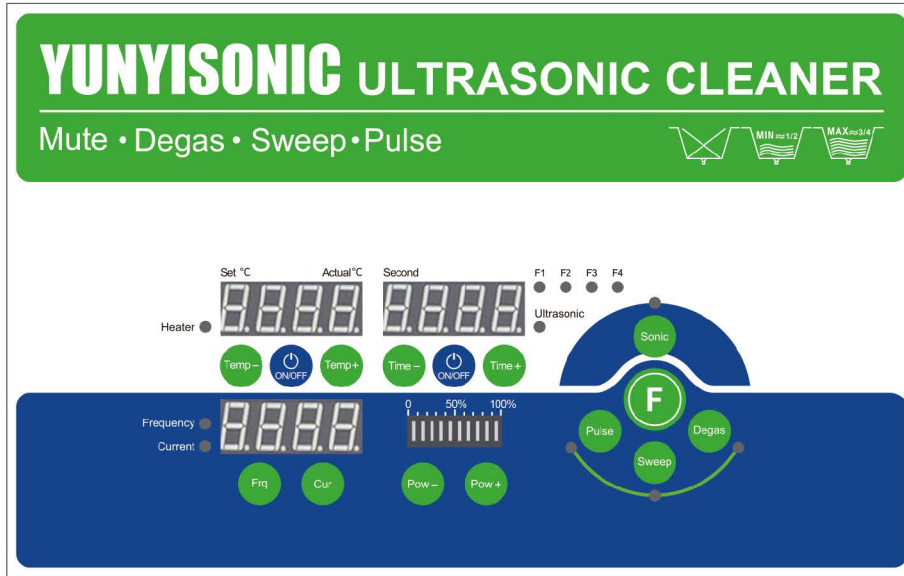
**Facilitate reactions between multiple solvents.**

### High-Frequency Waves: Gentle Yet Deeply Penetrating

High-frequency ultrasonic cleaner is mainly used in the semiconductor industry for cleaning 100~300 mm silicon wafers. It can effectively remove particles as small as 0.15 µm from the silicon wafer surface, as well as prevent the reattachment of particles during the rinse process. Currently, high-frequency ultrasonic cleaning bath is an essential part of large-scale integrated circuit manufacturing.



## Controller Display Diagram



### Controller Function Table

Control	Function
<div> <div> <div>Heater ●</div> <div> <div>Set °C</div> <div>Actual °C</div> <div> <div>45.00</div> <div>45.00</div> </div> </div> </div> <div> <div>Temp -</div> <div>ON/OFF</div> <div>Temp +</div> </div> </div>	<p><b>Temperature Setting</b></p> <p>The temperature display shows "45" and the actual temperature. Press the "Temperature+" button once to increase the set temperature by 1°C, and press the "Temperature-" button once to decrease the set temperature by 1°C. Press the "Temperature Setting": The temperature display shows "45" and the actual temperature. Press the "Temperature+" button once to increase the set temperature by 1°C, and press the "Temperature-" button once to decrease the set temperature by 1°C. Press the "Power" button once to activate the heating function. The heating indicator light turns on, and the actual temperature flashes at a frequency of 1Hz. When the temperature reaches the set value, the display stops flashing. The temperature display shows both the set and the actual temperature. In heating mode, the heating indicator light stays on.</p>
<div> <div> <div>Second</div> <div> <div>9999</div> <div>9999</div> </div> </div> <div> <div>Time -</div> <div>ON/OFF</div> <div>Time +</div> </div> <div> <div>Ultrasonic ●</div> </div> </div>	<p><b>Time Setting (accurate to seconds, maximum time 9999 seconds):</b></p> <p>When ultrasonic is off, each press of the "Time+" button increases the time display by 1 second, and each press of the "Time-" button decreases the time by 1 second. (Press and hold for quick adjustment.) Display "0000" for continuous mode. After setting the working time, press the "Power" button once to start the ultrasonic function. The ultrasonic indicator light turns on, and the machine works according to the specified parameters. The countdown starts, and when the set time is reached, the machine automatically stops, and the work indicator light turns off. Note: The digital series has a parameter memory function. Parameters set before the function is turned on are saved even after power loss.</p>
<div> <div> <div>Frequency ●</div> <div>Current ●</div> </div> <div> <div> <div>88.88</div> <div>88.88</div> </div> </div> <div> <div>Frq</div> <div>Cur</div> </div> </div>	<p><b>Frequency/Current Display Window:</b></p> <p>The default display alternates between the current working frequency and current every 5 seconds. When the frequency or current button is pressed, the display shows the corresponding frequency or current, and stops alternating. When the frequency light is on and shows "F80", it indicates that the current frequency is 80 kHz.</p>

# YL Series Controller Function Introduction(2)

Control	Function
<div> <div> <div>0</div> <div>50%</div> <div>100%</div> </div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> </div> <div> <div>Pow -</div> <div>Pow +</div> </div>	<div> <div>Power Adjustment</div> <div>           Power Adjustment: After turning on the ultrasonic function, press the "Power+" button to increase the power, and press the "Power-" button to decrease the power. Press and hold the button to continuously adjust the power. The adjustment range is from 10% to 100%.         </div> </div>
<div> <div> <div>F1</div> <div>F2</div> <div>F3</div> <div>F4</div> </div> <div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div></div> <div>Sonic</div> <div>F</div> <div>Pulse</div> <div>Degas</div> <div>Sweep</div> </div> </div>	<div> <div>Working Modes (Ultrasonic/Pulse/Degas)Switching</div> <div>           Before starting the ultrasonic, press the Ultrasonic, Pulse, or Degas button to enter the corresponding cleaning mode. If you want to switch to another cleaning mode during operation, first turn off the ultrasonic, then select the desired mode and turn on the ultrasonic again.           <div> <b>Sonic:</b>Normal cleaning, the cleaner operates at optimal settings.               <b>Pulse:</b>Power cycles between 1% and 100%, resulting in stronger cleaning impact.               <b>Degas:</b>Works for 6 seconds and stops for 3 seconds, quickly removing air from the liquid, improving cleaning efficiency.               <b>Sweep:</b>After turning on the ultrasonic, press "Sweep" to activate the sweep function. This function works with other modes, and when activated, the ultrasonic frequency cycles within <math>\pm 1</math> kHz to match the optimal working state of each transducer, resulting in better cleaning performance.             </div> </div> </div>
	<div> <div>Frequency Switching for Two / Three / Four Frequency Ultrasonic Cleaners:</div> <div>           After turning on the ultrasonic, press "Sweep" to activate the sweep function. This function works with other modes, and when activated, the ultrasonic frequency cycles within <math>\pm 1</math> kHz to match the optimal working state of each transducer, resulting in better cleaning performance.         </div> </div>

## 1)Cleaning Items (Treating Samples) in Timed Sonics Mode

Note	To stop ultrasonics at any time, press the Time key
<div> <div>i</div> </div>	<div> <ul style="list-style-type: none"> <li>Don't turn-on without the liquid</li> <li>To stop ultrasonics at any time, press the Time key</li> </ul> </div>

## 2)Draining Your Unit

Warning	General warning
<div> <div></div> </div>	<div> <ul style="list-style-type: none"> <li>Pls turn off stop heater &amp; wait for 10mins, before drain the liquid</li> <li>Do not immerse the cleaner in water. Unplug the unit from the power source</li> </ul> </div>

## Equipment Specifications (1)Single Frequency: 17, 20, 25kHz

• **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YNLH0203-20  
 YNLH: Standard series product (whole machine with manual argon arc welding) 02: Number of transducers (2 pcs)  
 03: Tank capacity (3.2L) 20: Frequency (20 kHz)

• **Frequency Characteristics:** Low-frequency ultrasonic waves have longer wavelengths. Cavitation bubbles formed at lower frequencies have larger radii, and the collapse of these bubbles generates more intense force. The primary feature of low frequencies is their strong vibrational force.

**For Cleaning:** 28 kHz is used for rough cleaning, especially for removing heavy oils, rust, and stubborn stains.

**For Experiments:** 20 kHz and 25 kHz are commonly used in wastewater treatment experiments, algae inhibition and removal experiments, and the treatment of hard-to-degrade organic substances.

### 17kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YNLH0203-17	2	3.2	240x135x100	340x195x320	17	0-160	300	20-80	1-9999
YNLH0205-17	2	4.8	240x135x150	340x195x370	17	0-160	300	20-80	1-9999
YNLH0304-17	3	4.5	300x150x100	400x210x220	17	0-180	450	20-80	1-9999
YNLH0306-17	3	6.5	300x150x150	400x210x370	17	0-180	450	20-80	1-9999
YNLH0610-17	6	10	300x240x150	400x300x370	17	0-480	600	20-80	1-9999
YNLH0614-17	6	14	300x240x200	400x300x420	17	0-480	600	20-80	1-9999
YNLH0815-17	8	15	330x300x150	430x360x370	17	0-640	1000	20-80	1-9999
YNLH0819-17	8	19	330x300x200	430x360x420	17	0-640	1000	20-80	1-9999
YNLH1422-17	14	22	500x300x150	600x360 x380	17	0-1120	1000	20-80	1-9999
YNLH1430-17	14	30	500x300x200	600x360x430	17	0-1120	1000	20-80	1-9999

### 20kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YNLH0203-20	2	3.2	240x135x100	340x195x320	20	0-200	300	20-80	1-9999
YNLH0205-20	2	4.8	240x135x150	340x195x370	20	0-200	300	20-80	1-9999
YNLH0304-20	3	4.5	300x150x100	400x210x220	20	0-300	450	20-80	1-9999
YNLH0306-20	3	6.5	300x150x150	400x210x370	20	0-300	450	20-80	1-9999
YNLH0610-20	6	10	300x240x150	400x300x370	20	0-600	600	20-80	1-9999
YNLH0614-20	6	14	300x240x200	400x300x420	20	0-600	600	20-80	1-9999
YNLH0815-20	8	15	330x300x150	430x360x370	20	0-800	1000	20-80	1-9999
YNLH0819-20	8	19	330x300x200	430x360x420	20	0-800	1000	20-80	1-9999
YNLH1422-20	14	22	500x300x150	600x360 x380	20	0-1400	1000	20-80	1-9999
YNLH1430-20	14	30	500x300x200	600x360x430	20	0-1400	1000	20-80	1-9999

### 25kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YNL0303-25	3	3.2	240x135x100	340x195x320	25	0-150	300	20-80	1-9999
YNL0305-25	3	4.8	240x135x150	340x195x370	25	0-150	300	20-80	1-9999
YNL0404-25	4	4.5	300x150x100	400x210x220	25	0-200	450	20-80	1-9999
YNL0406-25	4	6.5	300x150x150	400x210x370	25	0-200	450	20-80	1-9999
YNL0810-25	8	10	300x240x150	400x300x370	25	0-400	600	20-80	1-9999
YNL0814-25	8	14	300x240x200	400x300x420	25	0-400	600	20-80	1-9999
YNL1015-25	10	15	330x300x150	430x360x370	25	0-500	1000	20-80	1-9999
YNL1019-25	10	19	330x300x200	430x360x420	25	0-500	1000	20-80	1-9999
YNL1622-25	16	22	500x300x150	600x360 x380	25	0-800	1000	20-80	1-9999
YNL1630-25	16	30	500x300x200	600x360x430	25	0-800	1000	20-80	1-9999

## Equipment Specifications (2) Single Frequency:28, 33, 40kHz

- **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YL0203-33  
YL: Standard series product    02: Number of transducers (2 pcs)    03: Tank capacity (3.2L)    33: Frequency (33 kHz)
- **Frequency Characteristics: 33kHz and 40kHz** is a universal frequency, which can meet most cleaning and ordinary small laboratory experiments

### 28kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0203-28	2	3.2	240x135x100	265x165x280	28	0-100	300	20-80	1-9999
YL0205-28	2	4.8	240x135x150	265x165x330	28	0-100	300	20-80	1-9999
YL0304-28	3	4.5	300x150x100	325x175x280	28	0-150	450	20-80	1-9999
YL0306-28	3	6.5	300x150x150	325x175x330	28	0-150	450	20-80	1-9999
YL0610-28	6	10	300x240x150	325x265x330	28	0-300	600	20-80	1-9999
YL0614-28	6	14	300x240x200	325x265x380	28	0-300	600	20-80	1-9999
YL0815-28	8	15	330x300x150	355x325x330	28	0-400	1000	20-80	1-9999
YL0819-28	8	19	330x300x200	355x325x380	28	0-400	1000	20-80	1-9999
YL1422-28	14	22	500x300x150	530x330x335	28	0-700	1000	20-80	1-9999
YL1430-28	14	30	500x300x200	530x330x385	28	0-700	1000	20-80	1-9999

### 33kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0203-33	2	3.2	240x135x100	265x165x280	33	0-100	300	20-80	1-9999
YL0205-33	2	4.8	240x135x150	265x165x330	33	0-100	300	20-80	1-9999
YL0304-33	3	4.5	300x150x100	325x175x280	33	0-150	450	20-80	1-9999
YL0306-33	3	6.5	300x150x150	325x175x330	33	0-150	450	20-80	1-9999
YL0610-33	6	10	300x240x150	325x265x330	33	0-300	600	20-80	1-9999
YL0614-33	6	14	300x240x200	325x265x380	33	0-300	600	20-80	1-9999
YL0815-33	8	15	330x300x150	355x325x330	33	0-400	1000	20-80	1-9999
YL0819-33	8	19	330x300x200	355x325x380	33	0-400	1000	20-80	1-9999
YL1422-33	14	22	500x300x150	530x330x335	33	0-700	1000	20-80	1-9999
YL1430-33	14	30	500x300x200	530x330x385	33	0-700	1000	20-80	1-9999

### 40kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0203-40	2	3.2	240x135x100	265x165x280	40	0-100	300	20-80	1-9999
YL0205-40	2	4.8	240x135x150	265x165x330	40	0-100	300	20-80	1-9999
YL0304-40	3	4.5	300x150x100	325x175x280	40	0-150	450	20-80	1-9999
YL0306-40	3	6.5	300x150x150	325x175x330	40	0-150	450	20-80	1-9999
YL0410-40	4	10	300x240x150	325x265x330	40	0-200	600	20-80	1-9999
YL0414-40	4	14	300x240x200	325x265x380	40	0-200	600	20-80	1-9999
YL0615-40	6	15	330x300x150	355x325x330	40	0-300	1000	20-80	1-9999
YL0619-40	6	19	330x300x200	355x325x380	40	0-300	1000	20-80	1-9999
YL1022-40	10	22	500x300x150	530x330x335	40	0-500	1000	20-80	1-9999
YL1030-40	10	30	500x300x200	530x330x385	40	0-500	1000	20-80	1-9999
<b>YL0303-40</b>	3	3.2	240x135x100	265x165x280	40	<b>0-150</b>	300	20-80	1-9999
<b>YL0305-40</b>	3	4.8	240x135x150	265x165x330	40	<b>0-150</b>	300	20-80	1-9999
<b>YL0404-40</b>	4	4.5	300x150x100	325x175x280	40	<b>0-200</b>	450	20-80	1-9999
<b>YL0406-40</b>	4	6.5	300x150x150	325x175x330	40	<b>0-200</b>	450	20-80	1-9999
<b>YL0810-40</b>	8	10	300x240x150	325x265x330	40	<b>0-400</b>	600	20-80	1-9999
<b>YL0814-40</b>	8	14	300x240x200	325x265x380	40	<b>0-400</b>	600	20-80	1-9999
<b>YL1015-40</b>	10	15	330x300x150	355x325x330	40	<b>0-500</b>	1000	20-80	1-9999
<b>YL1019-40</b>	10	19	330x300x200	355x325x380	40	<b>0-500</b>	1000	20-80	1-9999
<b>YL1622-40</b>	16	22	500x300x150	530x330x335	40	<b>0-800</b>	1000	20-80	1-9999
<b>YL1630-40</b>	16	30	500x300x200	530x330x385	40	<b>0-800</b>	1000	20-80	1-9999

## Equipment Specifications (3)      Single Frequency: 53, 68, 80kHz

• **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YL0303-68  
 YL: Standard series product    03: Number of transducers (3 pcs)    03: Tank capacity (3.2L)    68: Frequency (68kHz)

• **Frequency Characteristics: Frequency Range (68-200 kHz)** is suitable for cleaning parts with complex geometric shapes. Cavitation bubbles can enter small holes to remove contaminated particles. For high-precision experiments involving cells and micro- to nano-sized particles, use 80KHz or 120KHz 200KHz.

### 53kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (℃)	Timer (S)
YLS0603-53	6	3.2	240x135x100	265x165x280	53	0-210	300	20-80	1-9999
YLS0605-53	6	4.8	240x135x150	265x165x330	53	0-210	300	20-80	1-9999
YLS0804-53	8	4.5	300x150x100	325x175x280	53	0-280	450	20-80	1-9999
YLS0806-53	8	6.5	300x150x150	325x175x330	53	0-280	450	20-80	1-9999
YLS1610-53	16	10	300x240x150	325x265x330	53	0-560	600	20-80	1-9999
YLS1614-53	16	14	300x240x200	325x265x380	53	0-560	600	20-80	1-9999
YLS2015-53	20	15	330x300x150	355x325x330	53	0-700	1000	20-80	1-9999
YLS2019-53	20	19	330x300x200	355x325x380	53	0-700	1000	20-80	1-9999
YLS3222-53	32	22	500x300x150	530x330x335	53	0-1120	1000	20-80	1-9999
YLS3230-53	32	30	500x300x200	530x330x385	53	0-1120	1000	20-80	1-9999

### 68kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (℃)	Timer (S)
YL0303-68	3	3.2	240x135x100	265x165x280	68	0-150	300	20-80	1-9999
YL0305-68	3	4.8	240x135x150	265x165x330	68	0-150	300	20-80	1-9999
YL0404-68	4	4.5	300x150x100	325x175x280	68	0-200	450	20-80	1-9999
YL0406-68	4	6.5	300x150x150	325x175x330	68	0-200	450	20-80	1-9999
YL0810-68	8	10	300x240x150	325x265x330	68	0-400	600	20-80	1-9999
YL0814-68	8	14	300x240x200	325x265x380	68	0-400	600	20-80	1-9999
YL1015-68	10	15	330x300x150	355x325x330	68	0-500	1000	20-80	1-9999
YL1019-68	10	19	330x300x200	355x325x380	68	0-500	1000	20-80	1-9999
YL1622-68	16	22	500x300x150	530x330x335	68	0-800	1000	20-80	1-9999
YL1630-68	16	30	500x300x200	530x330x385	68	0-800	1000	20-80	1-9999

### 80kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (℃)	Timer (S)
YL0303-80	3	3.2	240x135x100	265x165x280	80	0-150	300	20-80	1-9999
YL0305-80	3	4.8	240x135x150	265x165x330	80	0-150	300	20-80	1-9999
YL0404-80	4	4.5	300x150x100	325x175x280	80	0-200	450	20-80	1-9999
YL0406-80	4	6.5	300x150x150	325x175x330	80	0-200	450	20-80	1-9999
YL0810-80	8	10	300x240x150	325x265x330	80	0-400	600	20-80	1-9999
YL0814-80	8	14	300x240x200	325x265x380	80	0-400	600	20-80	1-9999
YL1015-80	10	15	330x300x150	355x325x330	80	0-500	1000	20-80	1-9999
YL1019-80	10	19	330x300x200	355x325x380	80	0-500	1000	20-80	1-9999
YL1622-80	16	22	500x300x150	530x330x335	80	0-800	1000	20-80	1-9999
YL1630-80	16	30	500x300x200	530x330x385	80	0-800	1000	20-80	1-9999

## Equipment Specifications (4)      Single Frequency: 120 , 130 , 200kHz

- **Model Name Definition :** The name of the models determine the specifications of each unit. For example the YLS0603-200  
YLS: Standard series product    06: Number of transducers (6 units)    03: Tank capacity (3.2L)    200: Frequency (200kHz)
- **Frequency Characteristics:** 200kHz generates smaller cavitation bubbles, which can effectively remove micro-particles or contaminants from objects with complex shapes in semiconductor industry, like silicon and wafer

### 120kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0303-120	3	3.2	240x135x100	265x165x280	120	0-150	300	20-80	1-9999
YL0305-120	3	4.8	240x135x150	265x165x330	120	0-150	300	20-80	1-9999
YL0404-120	4	4.5	300x150x100	325x175x280	120	0-200	450	20-80	1-9999
YL0406-120	4	6.5	300x150x150	325x175x330	120	0-200	450	20-80	1-9999
YL0810-120	8	10	300x240x150	325x265x330	120	0-400	600	20-80	1-9999
YL0814-120	8	14	300x240x200	325x265x380	120	0-400	600	20-80	1-9999
YL1015-120	10	15	330x300x150	355x325x330	120	0-500	1000	20-80	1-9999
YL1019-120	10	19	330x300x200	355x325x380	120	0-500	1000	20-80	1-9999
YL1622-120	16	22	500x300x150	530x330x335	120	0-800	1000	20-80	1-9999
YL1630-120	16	30	500x300x200	530x330x385	120	0-800	1000	20-80	1-9999

### 130kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0303-130	3	3.2	240x135x100	265x165x280	130	0-180	300	20-80	1-9999
YL0305-130	3	4.8	240x135x150	265x165x330	130	0-180	300	20-80	1-9999
YL0404-130	4	4.5	300x150x100	325x175x280	130	0-240	450	20-80	1-9999
YL0406-130	4	6.5	300x150x150	325x175x330	130	0-240	450	20-80	1-9999
YL0810-130	8	10	300x240x150	325x265x330	130	0-480	600	20-80	1-9999
YL0814-130	8	14	300x240x200	325x265x380	130	0-480	600	20-80	1-9999
YL1015-130	10	15	330x300x150	355x325x330	130	0-600	1000	20-80	1-9999
YL1019-130	10	19	330x300x200	355x325x380	130	0-600	1000	20-80	1-9999
YL1622-130	16	22	500x300x150	530x330x335	130	0-960	1000	20-80	1-9999
YL1630-130	16	30	500x300x200	530x330x385	130	0-960	1000	20-80	1-9999

### 200kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YLS0603-200	6	3.2	240x135x100	265x165x280	200	0-150	300	20-80	1-9999
YLS0605-200	6	4.8	240x135x150	265x165x330	200	0-150	300	20-80	1-9999
YLS0804-200	8	4.5	300x150x100	325x175x280	200	0-200	450	20-80	1-9999
YLS0806-200	8	6.5	300x150x150	325x175x330	200	0-200	450	20-80	1-9999
YLS1610-200	16	10	300x240x150	325x265x330	200	0-400	600	20-80	1-9999
YLS1614-200	16	14	300x240x200	325x265x380	200	0-400	600	20-80	1-9999
YLS2015-200	20	15	330x300x150	355x325x330	200	0-500	1000	20-80	1-9999
YLS2019-200	20	19	330x300x200	355x325x380	200	0-500	1000	20-80	1-9999
YLS3222-200	32	22	500x300x150	530x330x335	200	0-800	1000	20-80	1-9999
YLS3230-200	32	30	500x300x200	530x330x385	200	0-800	1000	20-80	1-9999

## Equipment Specifications (5) Two Frequency: 28/40,40/68,40/80kHz

• **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YL0203-2840  
 YL: Standard series product 02: Number of transducers (2 pcs) 03: Tank capacity (3.2L) 2840: Two Frequency (28/40kHz)

### 28/40kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0203-2840	2	3.2	240x135x100	265x165x280	28/40	0-100	300	20-80	1-9999
YL0205-2840	2	4.8	240x135x150	265x165x330	28/40	0-100	300	20-80	1-9999
YL0304-2840	3	4.5	300x150x100	325x175x280	28/40	0-150	450	20-80	1-9999
YL0306-2840	3	6.5	300x150x150	325x175x330	28/40	0-150	450	20-80	1-9999
YL0610-2840	6	10	300x240x150	325x265x330	28/40	0-300	600	20-80	1-9999
YL0614-2840	6	14	300x240x200	325x265x380	28/40	0-300	600	20-80	1-9999
YL0815-2840	8	15	330x300x150	355x325x330	28/40	0-400	1000	20-80	1-9999
YL0819-2840	8	19	330x300x200	355x325x380	28/40	0-400	1000	20-80	1-9999
YL1422-2840	14	22	500x300x150	530x330x335	28/40	0-700	1000	20-80	1-9999
YL1430-2840	14	30	500x300x200	530x330x385	28/40	0-700	1000	20-80	1-9999

### 40/68kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0303-4068	3	3.2	240x135x100	265x165x280	40/68	0-150	300	20-80	1-9999
YL0305-4068	3	4.8	240x135x150	265x165x330	40/68	0-150	300	20-80	1-9999
YL0404-4068	4	4.5	300x150x100	325x175x280	40/68	0-200	450	20-80	1-9999
YL0406-4068	4	6.5	300x150x150	325x175x330	40/68	0-200	450	20-80	1-9999
YL0810-4068	8	10	300x240x150	325x265x330	40/68	0-400	600	20-80	1-9999
YL0814-4068	8	14	300x240x200	325x265x380	40/68	0-400	600	20-80	1-9999
YL1015-4068	10	15	330x300x150	355x325x330	40/68	0-500	1000	20-80	1-9999
YL1019-4068	10	19	330x300x200	355x325x380	40/68	0-500	1000	20-80	1-9999
YL1622-4068	16	22	500x300x150	530x330x335	40/68	0-800	1000	20-80	1-9999
YL1630-4068	16	30	500x300x200	530x330x385	40/68	0-800	1000	20-80	1-9999

### 40/80kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0303-4080	3	3.2	240x135x100	265x165x280	40/80	0-150	300	20-80	1-9999
YL0305-4080	3	4.8	240x135x150	265x165x330	40/80	0-150	300	20-80	1-9999
YL0404-4080	4	4.5	300x150x100	325x175x280	40/80	0-200	450	20-80	1-9999
YL0406-4080	4	6.5	300x150x150	325x175x330	40/80	0-200	450	20-80	1-9999
YL0810-4080	8	10	300x240x150	325x265x330	40/80	0-400	600	20-80	1-9999
YL0814-4080	8	14	300x240x200	325x265x380	40/80	0-400	600	20-80	1-9999
YL1015-4080	10	15	330x300x150	355x325x330	40/80	0-500	1000	20-80	1-9999
YL1019-4080	10	19	330x300x200	355x325x380	40/80	0-500	1000	20-80	1-9999
YL1622-4080	16	22	500x300x150	530x330x335	40/80	0-800	1000	20-80	1-9999
YL1630-4080	16	30	500x300x200	530x330x385	40/80	0-800	1000	20-80	1-9999

# Equipment Specifications (6) Two Frequency: 40/120, 80/120kHz

● **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YL0304-40120  
YL: Standard series product 03: Number of transducers (3 pcs) 04: Tank capacity (4.5L) 40120: Two Frequency (40/120kHz)

## 40/120kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0404-40120	4	4.5	300x150x100	325x175x280	40/120	0-200	450	20-80	1-9999
YL0406-40120	4	6.5	300x150x150	325x175x330	40/120	0-200	450	20-80	1-9999
YL0810-40120	8	10	300x240x150	325x265x330	40/120	0-400	600	20-80	1-9999
YL0814-40120	8	14	300x240x200	325x265x380	40/120	0-400	600	20-80	1-9999
YL1015-40120	10	15	330x300x150	355x325x330	40/120	0-500	1000	20-80	1-9999
YL1019-40120	10	19	330x300x200	355x325x380	40/120	0-500	1000	20-80	1-9999
YL1622-40120	16	22	500x300x150	530x330x335	40/120	0-800	1000	20-80	1-9999
YL1630-40120	16	30	500x300x200	530x330x385	40/120	0-800	1000	20-80	1-9999

## 80/120kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0404-80120	4	4.5	300x150x100	325x175x280	80/120	0-200	450	20-80	1-9999
YL0406-80120	4	6.5	300x150x150	325x175x330	80/120	0-200	450	20-80	1-9999
YL0810-80120	8	10	300x240x150	325x265x330	80/120	0-400	600	20-80	1-9999
YL0814-80120	8	14	300x240x200	325x265x380	80/120	0-400	600	20-80	1-9999
YL1015-80120	10	15	330x300x150	355x325x330	80/120	0-500	1000	20-80	1-9999
YL1019-80120	10	19	330x300x200	355x325x380	80/120	0-500	1000	20-80	1-9999
YL1622-80120	16	22	500x300x150	530x330x335	80/120	0-800	1000	20-80	1-9999
YL1630-80120	16	30	500x300x200	530x330x385	80/120	0-800	1000	20-80	1-9999

## Frequency Difference: Low vs. High

### Low Frequencies (17-53kHz) Characteristics:

- Long wavelengths, large but uneven cavitation bubbles.
- Strong cavitation collapse forces, creating a more "brute force" cleaning action.
- Suitable for coarse cleaning tasks, especially for heavy oil, rust, and stubborn stains.
- For research and experiments, low frequencies are commonly used in wastewater treatment and algae suppression studies.

### High Frequencies (68-200kHz) Characteristics:

- Short wavelengths with dense and uniform cavitation bubbles.
- Gentle cavitation collapse forces with a more even acoustic field.
- High penetration capability, delivering a refined and soft cleaning action.
- Suitable for high-precision objects or experiments.

### Key Difference:

#### Sensory Comparison:

- At 40kHz, when placing your hand in the ultrasonic bath, the skin surface may feel tingling or itchy.
  - At 120kHz, the high penetration capability reaches the bone, causing a deep ache in the bone.
- This is the most straightforward sensory difference between the two frequencies.

## Equipment Specifications (7) Three Frequency: 20/40/60, 40/80/100, 40/80/120kHz

• **Model Name Definition:** The name of the models determine the specifications of each unit. For example the YL0404-4080100  
 YL: Standard series product 04: Number of transducers (4 units) 04: Tank capacity (4.5L) 4080100: Two Frequency (40/80/100kHz)

### 20/40/60kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YNLH0203-204060	2	3.2	240x135x100	340x195x320	20/40/60	0-240	300	20-80	1-9999
YNLH0205-204060	2	4.8	240x135x150	340x195x370	20/40/60	0-240	300	20-80	1-9999
YNLH0304-204060	3	4.5	300x150x100	400x210x220	20/40/60	0-360	450	20-80	1-9999
YNLH0306-204060	3	6.5	300x150x150	400x210x370	20/40/60	0-360	450	20-80	1-9999
YNLH0610-204060	6	10	300x240x150	400x300x370	20/40/60	0-720	600	20-80	1-9999
YNLH0614-204060	6	14	300x240x200	400x300x420	20/40/60	0-720	600	20-80	1-9999
YNLH0815-204060	8	15	330x300x150	430x360x370	20/40/60	0-960	1000	20-80	1-9999
YNLH0819-204060	8	19	330x300x200	430x360x420	20/40/60	0-960	1000	20-80	1-9999
YNLH1422-204060	14	22	500x300x150	600x360 x380	20/40/60	0-1680	1000	20-80	1-9999
YNLH1430-204060	14	30	500x300x200	600x360x430	20/40/60	0-1680	1000	20-80	1-9999

### 40/80/100kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0404-4080100	4	4.5	300x150x100	325x175x280	40/80/100	0-200	450	20-80	1-9999
YL0406-4080100	4	6.5	300x150x150	325x175x330	40/80/100	0-200	450	20-80	1-9999
YL0810-4080100	8	10	300x240x150	325x265x330	40/80/100	0-400	600	20-80	1-9999
YL0814-4080100	8	14	300x240x200	325x265x380	40/80/100	0-400	600	20-80	1-9999
YL1015-4080100	10	15	330x300x150	355x325x330	40/80/100	0-500	1000	20-80	1-9999
YL1019-4080100	10	19	330x300x200	355x325x380	40/80/100	0-500	1000	20-80	1-9999
YL1622-4080100	16	22	500x300x150	530x330x335	40/80/100	0-800	1000	20-80	1-9999
YL1630-4080100	16	30	500x300x200	530x330x385	40/80/100	0-800	1000	20-80	1-9999

### 40/80/120kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0404-4080120	4	4.5	300x150x100	325x175x280	40/80/120	0-200	450	20-80	1-9999
YL0406-4080120	4	6.5	300x150x150	325x175x330	40/80/120	0-200	450	20-80	1-9999
YL0810-4080120	8	10	300x240x150	325x265x330	40/80/120	0-400	600	20-80	1-9999
YL0814-4080120	8	14	300x240x200	325x265x380	40/80/120	0-400	600	20-80	1-9999
YL1015-4080120	10	15	330x300x150	355x325x330	40/80/120	0-500	1000	20-80	1-9999
YL1019-4080120	10	19	330x300x200	355x325x380	40/80/120	0-500	1000	20-80	1-9999
YL1622-4080120	16	22	500x300x150	530x330x335	40/80/120	0-800	1000	20-80	1-9999
YL1630-4080120	16	30	500x300x200	530x330x385	40/80/120	0-800	1000	20-80	1-9999

## Equipment Specifications (8)

### Four Frequency: 25/50/80/120、40/80/100/160、40/80/120/170

- **Model Name Definition:** The name of the models determine the specifications of each unit.  
For example the YL0404-255080120

YL: Standard series product 04: Number of transducers (4 pcs) 04: Tank capacity (4.5L) 255080120: Four Frequency (25/50/80/120kHz)

#### 25/50/80/120kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0810-255080120	8	10	300x240x150	325x265x330	25/50/80/120	0-400	600	20-80	1-9999
YL0814-255080120	8	14	300x240x200	325x265x380	25/50/80/120	0-400	600	20-80	1-9999
YL1015-255080120	10	15	330x300x150	355x325x330	25/50/80/120	0-500	1000	20-80	1-9999
YL1019-255080120	10	19	330x300x200	355x325x380	25/50/80/120	0-500	1000	20-80	1-9999
YL1622-255080120	16	22	500x300x150	530x330x335	25/50/80/120	0-800	1000	20-80	1-9999
YL1630-255080120	16	30	500x300x200	530x330x385	25/50/80/120	0-800	1000	20-80	1-9999



#### 40/80/100/160kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0810-4080100160	8	10	300x240x150	325x265x330	40/80/100/160	0-400	600	20-80	1-9999
YL0814-4080100160	8	14	300x240x200	325x265x380	40/80/100/160	0-400	600	20-80	1-9999
YL1015-4080100160	10	15	330x300x150	355x325x330	40/80/100/160	0-500	1000	20-80	1-9999
YL1019-4080100160	10	19	330x300x200	355x325x380	40/80/100/160	0-500	1000	20-80	1-9999
YL1622-4080100160	16	22	500x300x150	530x330x335	40/80/100/160	0-800	1000	20-80	1-9999
YL1630-4080100160	16	30	500x300x200	530x330x385	40/80/100/160	0-800	1000	20-80	1-9999

#### 40/80/120/170kHz Series

Model	Transducers (PCS)	Capacity (L)	Tank Size (LxWxH mm)	Unit Size (LxWxH mm)	Frequency (kHz)	Ultrasonic Power (W)	Heating Power (W)	Temp. (°C)	Timer (S)
YL0810-4080120170	8	10	300x240x150	325x265x330	40/80/120/170	0-400	600	20-80	1-9999
YL0814-4080120170	8	14	300x240x200	325x265x380	40/80/120/170	0-400	600	20-80	1-9999
YL1015-4080120170	10	15	330x300x150	355x325x330	40/80/120/170	0-500	1000	20-80	1-9999
YL1019-4080120170	10	19	330x300x200	355x325x380	40/80/120/170	0-500	1000	20-80	1-9999
YL1622-4080120170	16	22	500x300x150	530x330x335	40/80/120/170	0-800	1000	20-80	1-9999
YL1630-4080120170	16	30	500x300x200	530x330x385	40/80/120/170	0-800	1000	20-80	1-9999


Setting operating parameters

Step	Action
1	<b>Add Cleaning Solution:</b> Based on the manufacturer’s recommendation, add the correct diluted cleaning solution to the tank until it reaches the operational liquid level.
2	Consider the volume of the items to be cleaned and leave some space for the cleaning solution. Add solution until it is above half of the tank’s liquid level.
3	<b>Power Connection:</b> Plug the cleaning machine into a grounded outlet with a grounding terminal.
4	<b>Turn On Main Power Switch:</b> The switch is located at the back of the desktop cleaning machine, near the power cord socket.
5	<div><div>Second</div><div></div><div>Ultrasonic ●</div><div><div>Time –</div><div>ON/OFF</div><div>Time +</div></div></div> <div><b>Note: When “0000” is displayed, it indicates the always-on mode</b> <b>Set Cleaning Time:</b> Use the “Time +” button to increase the cleaning duration or the “Time -” button to decrease it. (Press and hold these buttons for rapid adjustments.) <b>Start Ultrasonic Cleaning:</b> Gently press the “ON/OFF” button once. The ultrasonic operation indicator light will turn on, and the machine will operate according to the set parameters.</div>
6	<div><div>Heater ●</div><div></div><div><div>Temp –</div><div>ON/OFF</div><div>Temp +</div></div></div> <div><b>Note: Pressing the heating “Switch” button at any time will stop the heating function</b> <b>Note: The heating function can be enabled before or during ultrasonic operation</b> <b>Set Heating Temperature:</b> Press the “Temp +” button once to increase the set temperature by 1°C or the “Temp -” button to decrease it by 1°C. Press the “ON/OFF” button once to enable the heating function. The heating indicator light will turn on, and the machine will start heating.</div>
7	<b>Prepare Items for Cleaning:</b> Place the items to be cleaned in a mesh basket, beaker, or solid tray. Ensure the cleaning solution covers the items.
8	<b>Insert Basket or Beaker Slowly:</b> Slowly lower the basket or tray or beakers into the tank. Do not stir. Do not allow the items being cleaned to touch the tank bottom.
9	<b>Remove Items After Cleaning:</b> When the items are clean, then slowly remove the items from the cleaner.
10	<b>Post-Cleaning:</b> Rinse items with water, and dry with a non-abrasive cloth or allow them to air dry, if necessary.

Temperature

Item	Function
Heater	The heater may cause some discoloration of the tank wall. This is normal and will not affect the heating performance of the unit.
Solution	The fastest method to heat your ultrasonic bath is to fill with warm solution, use heat, ultrasonics (which also adds heat), and a cover.

## Cleaning Solutions

Caution	General warnings
	Do not use alcohol, gasoline, bleach, mineral acids, solutions with a flash point, semi-aqueous or combustible liquids in ultrasonic tanks, Only use non-flammable solutions and water-based solutions

### Solution Types

#### Water-Based Solutions

Water-based solutions can be either slightly acidic or alkaline. They include detergents, soaps and industrial cleaners designed to remove specific soils or contaminants.

#### Acidic Water-Based Solutions

Used for removing rust, stains, or oxides. Acidic solutions range from mild formulations for rust stain removal to concentrated solutions for removing gypsum, limescale, zinc oxide, and rust from steel products, as well as heat-treatment scales from hardened steel.

#### Alkaline Water-Based Solutions

These solutions contain carbonates, silicates, and caustic, which emulsify contaminants / debris / grime and prevent redeposition on cleaned surfaces, enhancing cleaning effectiveness, especially in hard water.

### Alkaline Solution Strength and Usage

Alkaline Strength	Removes
Mild	Light oils and greases, cutting oils and coolant compounds.
Mild to strong	Heavy grease and oil, waxes, vegetable oils, inks, wax or fat-base buffing and polishing compounds, milk residues and carbohydrates.
Heavy-duty	Mill scale, heat-treat scale, corrosion or oxides.

### Solution Contamination

Change the cleaning solution periodically. Cleaning solutions can become contaminated with suspended soil particles which coat the tank bottom. This coating lessens the ultrasonic action and reduces cleaning efficiency. Certain solutions will cavitate better than others.

#### Heating and Cavitation

Increase the chemical activity of cleaning solutions. Some materials may be damaged by this stronger chemical action. In case of doubt, perform a sample test on the item to be cleaned.

#### Caustic (Alkaline) Solutions

Used to remove rust from steels, metal alloy corrosion and a variety of tenacious soils.

#### Solution Amounts

Proper dilution of cleaning agents with water is crucial for safety and optimal performance. The required dilution ratio may vary depending on the specific detergent and the type of soil to be removed. Follow instructions on the solution container and refer to the table below for the effects of the solution on metals.

#### Chemical Harmful to Your Tank

The following chemicals can damage ultrasonic cleaning tanks. Ultrasonics add heat to the solution and high temperatures increase the chemical activity of chemical solutions. Do not use these or similar chemicals directly or in dilute in the tank, or you will void the warranty. For more details, please refer to Yunyisonic's chemical compatibility guides.


Harmful Chemical		
Acetophenone	Chloroacetic acid	Hydrocyanic acid
Aluminum chloride	Chloric acid	Hydrofluoric acid
Aluminum sulfate	Chromic acid	Iodoform
Ammonium bifluoride	Cupric chloride	Manganese mercury
Chloropentane	Ferric chloride	Sodium hypochlorite
Antimony trichloride	Ferrous chloride	Potassium chloride
Aqua regia	Sulfuric acid	Tin chloride
Bromide	Fluoroboric acid	Stannous chloride
Calcium hydrogen sulfate	Fluorine	Sulfur chloride
Calcium hydrogen sulfite	Hydrobromic acid	Sulfuric acid
Calcium hypochlorite	Hydrochloric acid	Zinc chloride

## Various Cleaning Solution Effects On Different Metals

Cleaning Agent	Steel	Brass	Aluminum	Magnesium	Zinc	S/Stainless Steel Copper	Tin
Optical (1)	None	None	None	None **	None **	None	None **
Jewelry (1)	None	None	None	None	None	None	None
Buffing Compounds (1)	None	Slight Tarnish	None	None	Attacks	None	None
Oxide Remover (2)	Slight etch	None	Slight Attack	Attacks	Attacks	None	None
Electronic Cleaner (1)	None	None	Slight Attack	None	None	None	None
General Purpose (1)	None	None	Slight Attack	None	None	None	None
Industrial Strength (1)	None	None	Slight Attack	None	None	None	None
Metal (1) Cleaner 1	None	None	None	None	None	None	None
Metal (1) Cleaner 2	None	None	Slight Attack	None	None	None	None
Metal (1) Cleaner 3	None	None	None	None	None	None	None
Liquid Rust(3) Stripper	None	None	Attacks***	Attacks***	Attacks	None	Slight Attack
GP Powder (1)	None	None	None	None	None	None	None

\*\*\*No effect if solution temperature is less than 60° C (140° F)

(1) = Alkaline; (2) = Acidic; (3) = Caustic

Warning	General Warning
	*** Free hydrogen may be released if solution comes in contact with reactive metals.

# Beaker Sizes Specifications

Beakers are often used for preparing solutions and as reaction vessels for larger quantities of reagents. Common beaker specifications include: 5mL, 10mL, 15mL, 25mL, 50mL, 100mL, 250mL, 300mL, 400mL, 500mL, 600mL, 800mL, 1000mL, 2000mL, 3000mL, 5000mL.

Detailed specifications are as follows:

Capacity(mL)	Body Diameter(mm)	Height(mm)	Mouth Diameter(mm)
5	22	31	26
10	25	37	29
25	32	50	36
50	47	60	52
100	52	72	60
150	59	85	68
200	64	90	73
250	71	97	78
300	77	107	85
400	82	111	90
500	90	122	95
600	96	129	110
800	104	140	117
1000	112	155	123
2000	138	195	145
3000	160	248	170
5000	170	270	190

The specifications of beakers and the corresponding suitable ultrasonic cleaner sizes are as follows:

Capacity(L)	Basket Size(mm)	Suitable Beaker Specifications (mL)
3.2L	210x110x50	5-600
4.5L	265x115x50	
4.8L	210x110x80	
6.5L	270x115x100	
10L	260x200x90	800-5000
14L	260x200x120	
15L	290x260x90	
19L	290x260x120	
22L	450x260x90	
30L	450x260x120	

# Household / Industrial Ultrasonic Cleaner Manufacturer

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**Manufacturer: Yunyisonic Shenzhen Co., Ltd.**

Production Address: 1, Bitou 3 Industrial Pk 4 Rd, Baoan, Shenzhen, Guangdong Province, China

T :+86 18938665253

E: [sales\\_dean@yunyisonic.com](mailto:sales_dean@yunyisonic.com)

**CUSTOMER SERVICE: [yunyisonic@yunyisonic.com](mailto:yunyisonic@yunyisonic.com)**