



HWASHIN TECHNOLOGY



Model : **POWERSONIC 505/510/520**



HWASHIN

ULTRASONIC CLEANER

INSTRUCTION MANUAL

CONTENTS

▶ Warnings & Cautions	3
▶ What is Ultrasonic Cleaning?	8
▶ Name and Function of each Parts	9
▶ Operating Methods	10
▶ Cleaning Methods	10
▶ Optimum Condition for the best results	11
▶ Cleaning Solutions	11
▶ Troubleshooting Guide	12
▶ Specifications	13
▶ Warranty & Service	13



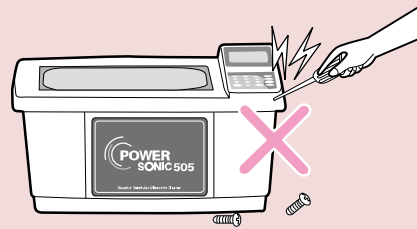


Warnings & Cautions

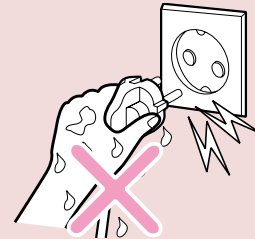
Before using our Hwashin POWERSONIC Cleaner, please read and thoroughly understand these warnings. Failure to follow these warnings may result in serious personal injury or property damage.

⚠ Warnings ⚠

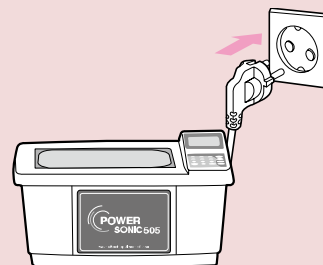
Never disassemble your cleaner – high voltage inside of cleaner is dangerous.



Unplug from power source before filling or emptying the bath.



Never operate the cleaner without proper grounding.

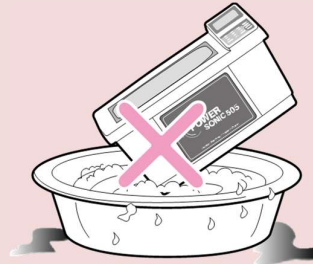




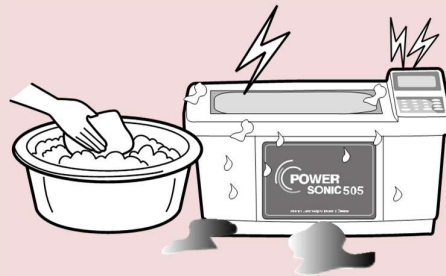
Warnings & Cautions

⚠ Warnings ⚠

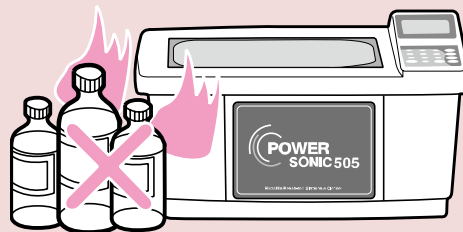
Never immerse the cleaner in water.



Keep the control panel and the area around the cleaner clean and dry - Water and high voltage can cause electrical shock.



Never use alcohol, gasoline or flammable solutions. Doing so could cause a fire or explosion and will void your warranty.



Never use solvents, use only water-based solutions.

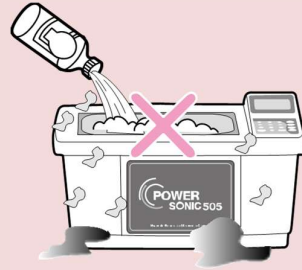




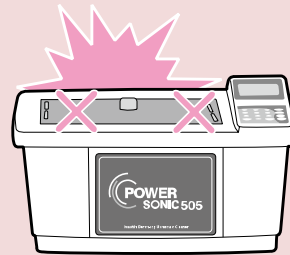
Warnings & Cautions

⚠ Warnings ⚠

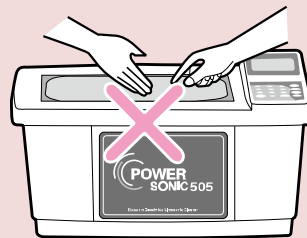
Never use mineral acids. These could damage the bath.



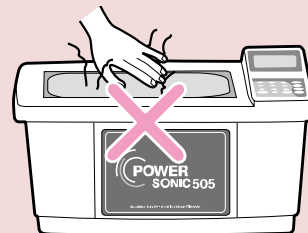
Never operate the cleaner with a unvented cover.



Never place your fingers or hands into the bath while the cleaner is operating. (Doing so may cause discomfort and electrical shock.)



Never touch the stainless steel bath or cleaning solution. They may be hot.

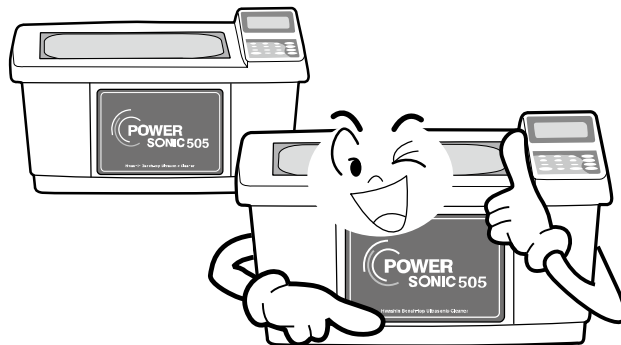
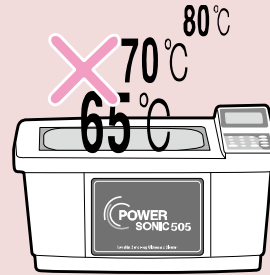




Warnings & Cautions

⚠ Warnings ⚠

Never allow fluid temperature
to exceed **65°C**

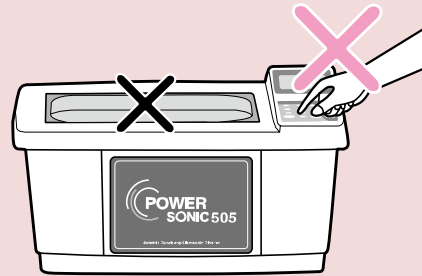




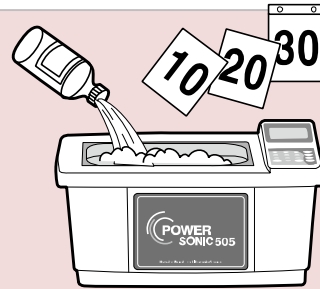
Warnings & Cautions

⚠ Cautions ⚠

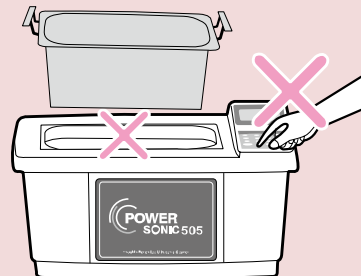
Never operate the cleaner without liquid in bath.



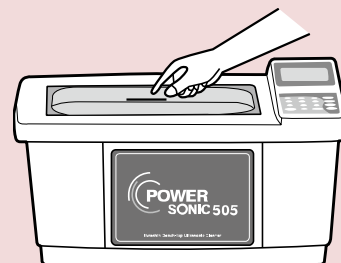
Do change your solution regularly.



Never place parts or containers directly on the bottom of the cleaning bath. Use a tray or wire to suspend items. Failure to comply may cause transducer damage and will void warranty.



Never allow the solution to drop more than 1Cm below the operating line with heat or ultrasonics on. Failure to comply may cause transducer and/or heater damage.





What is the Ultrasonic Cleaning?

Ultrasonic cleaning is faster, more effective method for reducing the cleaning time and cost than any other method - scrubbing soaking, steam and so on.

Ultrasonic sound is sound transmitted at frequencies beyond the range of human hearing. As the sound waves from the transducer radiate through the liquid in the bath, they alternate high and low pressures in the liquid.

During the low pressure stage, millions of bubbles form and grow. This process is called Cavitation. During the high pressure stage, the bubbles collapse, or implode, releasing enormous amounts of energy. They work in all directions, attack every surface and invade all recesses and openings.

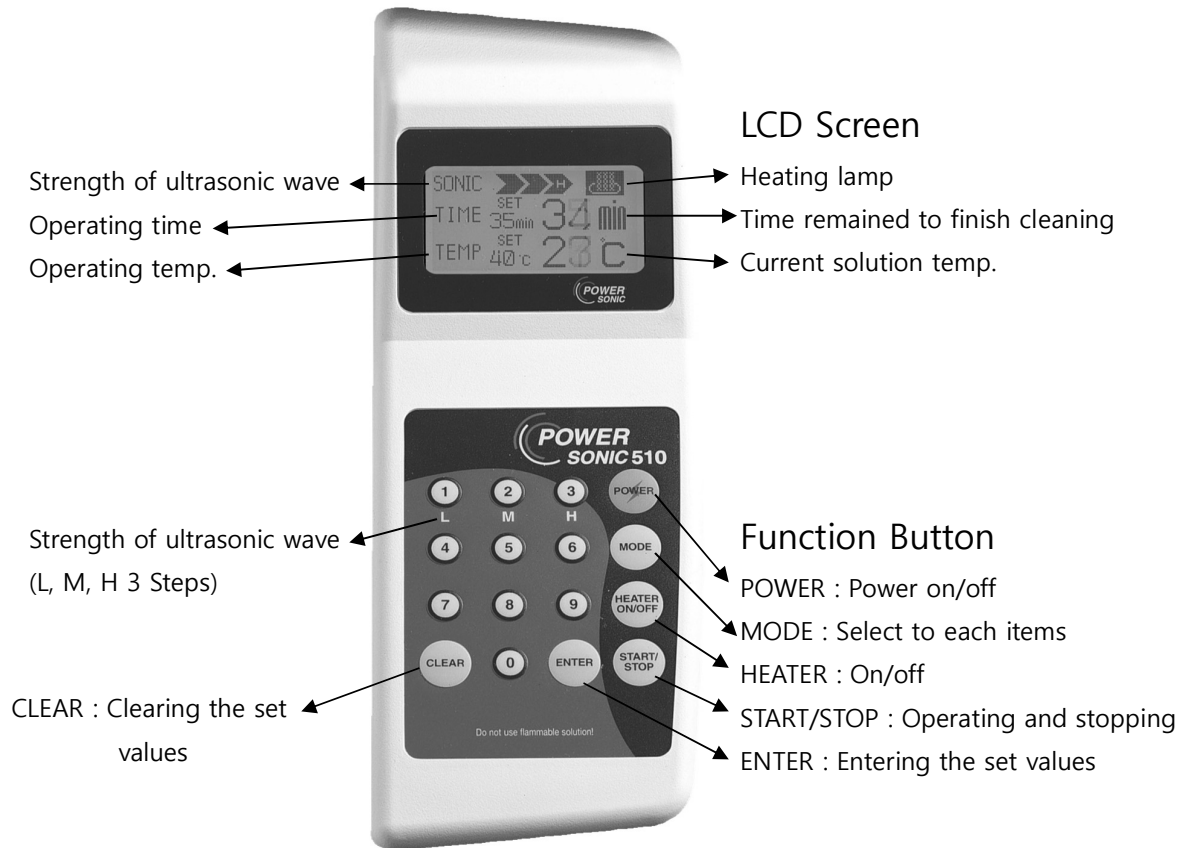
Applications

- Surgical and dental instruments
- Intricate lab glassware
- Scientific instruments and components
- Metal parts and assemblies
- Plastic parts and assemblies
- PC boards
- Electrical and electronic components
- Jewelry and watches, Clock movements
- Optical equipments
- Eyeglasses and frames
- Veterinary instruments
- Instrument part and assemblies



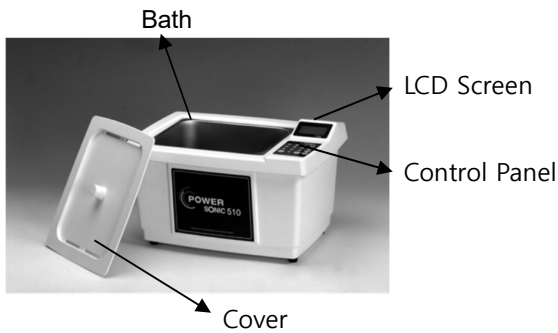
Name and Function of each parts

Control Panel

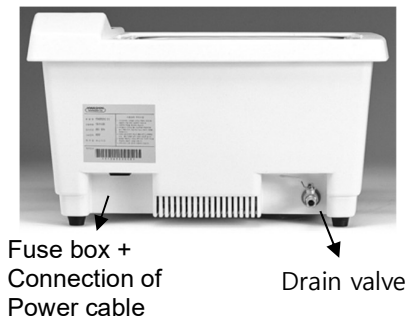


Name of each parts

Front View



Rear View





Operating Method

1. Fill the bath with warm water. The liquid should come to within 3 Cm from the top of the bath when the tray and items to be cleaned are submerged.
2. Add the cleaning solution to the water, if necessary.
3. Plug the cleaner into its power source and press POWER button to ON.
4. Slowly lower the tray into the bath.
5. Select SONIC using the MODE button and set strength of ultrasonic wave using L, M and H button.
6. After selecting TIME with the MODE button, set operating time with numeric buttons and then press ENTER button. (Operating time is elapsed, the unit will alarm several times to notify the user)
7. After selecting TEMP with the MODE button, set operating temperature with numeric buttons and then press ENTER button. The TEMP displayed on the right side of LCD screen is actual temperature of the solution.
8. When the unit is heated, heating lamp on LCD screen is turned on.
9. After inputting all parameters, push the START/STOP button to start cleaning.
10. When the items are clean, press START/STOP button and POWER button in sequence.
11. If necessary, rinse clean items with clean water and dry.



Cleaning Method

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 best results.

(1) Direct method

The advantages of this method are simplicity of operation and cleaning effectiveness.

- All removed soil remains in the bath.
- Only one solution can be used at a time.
- Highly acidic or caustic solutions can erode the bath surface.
 - ▶ Fill the bath with warm water and cleaning solution.
 - ▶ Place the items to be cleaned in a tray and lower them into the bath.
You can also suspend items on a wire and then immerse them in the solution.

(2) Indirect method

The advantages of this method are

- Removed soil stays in the beaker or tray so you can easily examine, filter or discard it.
- You can use also one or more solutions at the same time.
- Cleaning solution in your bath needs to be changed less often.
 - ▶ Fill the bath with warm water and a cleaning solution.
 - ▶ Pour your solution medium into one or more beakers or into a solid tary.
 - ▶ Place the beakers in a beaker positioning cover or a solid tray to fit your cleaner.
Beakers should not touch the baths bottom.



Optimum Condition for the best results

Overload : Do not rest any items on the bath bottom.

Weight on the bath bottom dampens sound energy and will cause damage to the transducer.
(Use a tray and / or beaker positioning cover.)

Liquid Level : Fill the cleaner to the operating line using warm water.

Low solution level : When you remove heavy or bulky loads from the cleaner, the solution level may drop below the operating line. (It may cause the heater to fail)

Flammable solution : Never use solvents. Vapors of flammable solutions will collect under the cleaner, where ignition is possible from electrical components.

Temperature : Approximate stabilization temperatures with ultrasonic and heat running continuously : 50°C

Rinsing : Rinse away chemicals which adhere to items after cleaning. A highly effective method of rinsing is using a clean water bath in your cleaner.

Cleaning : Check the bath for contamination whenever you change solution.

If necessary, remove contaminants with a nonabrasive cloth and water.

Cover : Allow the cleaner to heat up faster, to a high temperature, and avoid excessive liquid evaporation. However, obstructing the cover vents will cause the cleaner to overheat.

Load size : It is faster and more efficient to run several small loads rather than a few big loads.

Corrosive solution : Never use corrosive solutions such as strong acids or powerful caustics directly in the bath.

Heater : The heater may cause some discoloration of the bath wall. This is normal and will not affect the performance of the unit.



CLEANING SOLUTIONS

⚠ Cautions ⚠

Do not use alcohol, gasoline, bleach, mineral acids, solutions with a flash point, semi-aqueous or combustible liquids in bath. Only use non-flammable solutions and water-based solutions.

Hwashin cleaner is designed to operate only with the water-based solutions and non-flammable solutions. Water-based solutions fall into two categories - acidic and alkaline. They include detergents and soaps and industrial cleaners designed to remove specific soils



CLEANING SOLUTIONS

Acidic water-based solutions : remove rust, tarnish or scale.

Alkaline water-based solutions :

Mild : Light oils, greases, cutting oils, coolant compounds.

Mild to strong : Heavy greases and oil, waxes, vegetable oils, inks, milk residues.

Heavy-duty : Mill scale, heat-treat scale, corrosion or oxides.



Troubleshooting Guide

If your cleaner does not operate satisfactorily, please check the tables below for possible causes before calling your service center.

Problem	Cause	Solution
Unit doesn't start	<ol style="list-style-type: none"> 1. Unit not plugged in properly 2. Power button not on 3. Faulty Start button 4. Faulty fuse 	<ol style="list-style-type: none"> 1. Plug into electrical outlet 2. Press power button on 3. Call nearest service 4. Replace new fuse (located on back of the unit/ fuse box)
Unit operates but does not heat solution	Faulty heater elements	Call nearest service center
Unit operates but time/temp display does not function	Faulty time/temp elements	Call nearest service center
Decreased ultrasonic activity	<ol style="list-style-type: none"> 1. Solution is spent or dirty 2. Solution level is too low 3. Liquid level is incorrect for load 4. Bath bottom is covered with soil particles 	<ol style="list-style-type: none"> 1. Change solution 2. Add more solution 3. Adjust level with load until activity increase 4. Clean bath with warm water and wipe with a nonabrasive cloth
Clogged drain	Clogged drain valve or Hose	Call nearest service center



Specifications

Model	505	510	520
Display	70 X 40mm LCD Screen		
Transducer	Industrial BLT Type		
Time Range	1~99min(Digital)		
Temp. Range	Ambient~70°C(Digital)		
Frequency	40KHz		
Housing Material	ABS		
Bath Capacity(ℓ)	5.7	10.0	20.7
Bath Size(mm)	300X155X150	300X240X150	500X300X150
Overall Size(mm)	500X285X260	510X375X280	720X450X280
Required Power(W)	350	400	700
Net Weight(Kg)	7	9	14
Voltage	Available from 100 to 240V, 50/60Hz		



Warranty & Service

Warranty

Hwashin ultrasonic cleaners, when used in accordance with manufacturer's instructions and under normal use, are guaranteed for one year after date of shipment. Within the period guaranteed, Hwashin will repair or replace free of charge, all parts that are defective because of material or workmanship.



Warranty & Service

Service

⚠ Warranty ⚠

**You will void warranty if you disassemble your cleaner.
High voltage inside the cleaner is dangerous.**

With normal use, your Ultrasonic cleaner should not require servicing. However, if it fails to operate satisfactorily, first try to diagnose the problem by following the suggestions in the Troubleshooting Guide.

If you find that your cleaner needs repair, return it to our service center.
Do not disassemble it - high voltage inside the cleaner is dangerous.

Carefully pack and send your cleaner to a service center with all transportation charges prepaid.



HWASHIN TECHNOLOGY

Head Office : 10, Nonhyeon-ro 81-gil, Gangnam-gu, Seoul 06237, Korea
Tel : 82-2-3450-5605 Fax : 82-2-3450-5700

Factory : 680-9, Poeun-daero, Gwangju-si, Gyeonggi-do 12779, Korea
Tel : 82-31-765-2530 Fax : 82-31-765-2540

Website : www.hwashintech.co.kr

E-mail : tech@hwashin.net