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Focusing on ultrasonic technology
R & D and manufacturing

Standard Ultrasonic Cleaner User Manual

YM1240/L YM1860/L YM2480/L YM30108/L YM36135/L
YM48192/L YM60264/L YM72360/L YM108540/L YM144960/L

1. Description

About the device

Single-tank cleaning machine is our standard model, made of high quality 304 stainless steel plate, with strong corrosion resistance and long service life. The original high-quality industrial ultrasonic transducer is used with advanced bonding technology, and the electroacoustic conversion efficiency is high, and the ultrasonic output power is strong. It is equipped with a constant temperature automatic heating device. Temperature control range: normal degree -95 °C.

Working environment

Temperature: 10°C ~ 40°C

Humidity: 35 ~ 85 %

Principle of cleaning

The high-frequency ultrasonic waves emitted by the ultrasonic transducer generate 28,000 vibrations (28Khz transducers) or 40,000 vibrations (40Khz transducers) per second, using liquid as a medium of propagation. Since ultrasonic waves are a type of compressed longitudinal wave, the action of the medium pushes the pressure in the liquid, resulting in numerous tiny vacuum bubbles, causing cavitation effects. When the vacuum bubble is blasted by pressure, it will produce a strong impact force, which can quickly remove the grease and dirt attached to the surface, concave or concealed parts of the object. Thorough cleaning is achieved without damaging the surface of the workpiece.

Industries	Applicable workpiece products and materials
Semiconductor	Integrated circuits, power tubes, silicon wafers, gallium arsenide, diodes, lead frames, capillaries, trays, etc.
Electronic	Tube components, cathode ray tubes, printed wiring boards, quartz components, resistors, voltmeters, variable capacitors, circuit breakers, relays, connectors, variable connectors, electrolytic capacitors, telephone switching equipment, speaker components, power meter, Motor/roller/fixing plate on the pump, liquid crystal glass, magnetic core iron parts, Computer floppy disk, video tape parts, hoop parts, magnetic heads, etc.
Precision machine	Bearings, sewing machine parts, typewriters, textile machines, optomechanics, Gas valves, watches, cameras and metal filters.
Optical device	Lens, prism, lens, filter lens, glass device, Film, fiber, etc.
Hardware	Bearings, gears, steel balls, metal castings, tools, adjustable valves and cylinder components, burners, compressors, hydraulic presses, Spray guns and ultracentrifuges, city taps, filters, filters, etc.
Electroplating	Plating parts, molds, stampings, etc.
Car	Piston ring, vaporizer, fuel pump, flow meter housing, compressor housing, Measure the bottom of the crank, the car castings, electrical components, and more.
Chemical fiber	Chemical or man-made fiber optic nozzles, filter protectors, chemical fiber texture.

Precautions

- Before connecting the power supply, please make sure it is within the rated range. It is strictly forbidden to modify this product! Please note that the control panel of this device will be attacked by organic solvents, strong acids and strong alkalis.
- Before use, make sure the ground wire is connected reliably to prevent leakage.
- The system activation button should be placed in the "OFF" position before use.
- When there is no cleaning liquid in the cleaning tank, it is forbidden to start the ultrasonic power supply, otherwise the ultrasonic transducer will be damaged. In normal use, if the heating function needs to be activated, the water level in the tank should not be lower than 2/3.
- It is recommended to cover the lid to reduce noise during cleaning. Please pay attention to water and steam to burn the skin when opening the lid.
- Do not move the device while the cleaning bath contains cleaning fluid to prevent spillage.
- Bench-top ultrasonic cleaners recommend the use of water-soluble cleaners. It is strictly forbidden to use strong acid or flammable cleaners. If you need to use a solvent-based cleaner, do not heat it, and after working for about 80 minutes, be sure to rest for a while before starting work.
- **Please do not use it in the following harsh environments:**
 - a place where temperature changes are intense;
 - a place where the temperature is too high and dew will occur;
 - a place where vibration or shock is strong;
 - Where corrosive gases or dust are present;
 - a place where water, oil, or chemicals splash;
 - Full of explosive and flammable gases;

2. Main specifications and technical parameters

Model example: YM3613

YM: Standard series model

36: 36pcs transducer

L : Filtration system

No.	GM configuration specifications						Options
	V/A	Ultrasonic power	Heating power	Inner size/volume	Time control	Generator	L
YM1240	2phase 220V AC 10A	0-600W adjustable	1.5KW	500X260X300/40L	1-99min/ Continuous runing	Built-in	——
YM1860	2phase 220V AC 11A	0-900W adjustable	3KW	500X350X350/61L	1-99min/ Continuous runing	Built-in	220VAC 370W
YM2480	2phase 220V AC 20A	0-1200W adjustable	3KW	550X400X400/88L	1-99min/ Continuous runing	Built-in	220VAC 550W
YM30108	2phase220V AC 21A	0-1500W adjustable	3KW	600X450X400/108L	1-99min/ Continuous runing	Built-in	380VAC 750W
YM36135	3phase220V AC 21A	0-1800W adjustable	4.5KW	600X500X450/135L	0-99h	Built-in	380VAC 750W
YM48192	3phase380V AC 17A	0-2400W adjustable	6KW	700X500X500/175L	0-99h	External	380VAC 750W
YM60264	3phase380V AC 23A	0-3000W adjustable	6KW	800X600X550/264L	0-99h	External	380VAC 750W
YM72360	3phase380V AC 32A	0-3600W adjustable	9KW	1000X600X600/360L	0-99h	External	380VAC 750W
YM108540	3phase380V AC 48A	0-5400W adjustable	12KW	1000X900X600/540L	0-99h	External	380VAC 750W
YM144960	3phase380V AC 69A	0-7200W adjustable	18KW	1200X1000X800/960L	0-99h	External	380VAC 750W

3. Equipment installation

Machine test

- Check if the machine matches the describe;
- Check the machine for deformation, damage, etc.
- Unpack the casing and check if there are any screws falling inside and other crashes during transportation.

Device installation

- Ensure that the power supply meets the current and voltage requirements of the machine. For details, please refer to the technical specification parameter table.
- Machine placement: Since the bottom of the machine is equipped with cables, do not place it in a place with high humidity or water. In addition, the machine needs to dissipate heat during operation. The outside of the machine must have at least 10CM space. The external generator should not be placed in high temperature, high humidity and no ventilation;

- Make sure the generator circuit is normal, refer to the generator instruction manual;
- The parts of the machine are connected correctly.

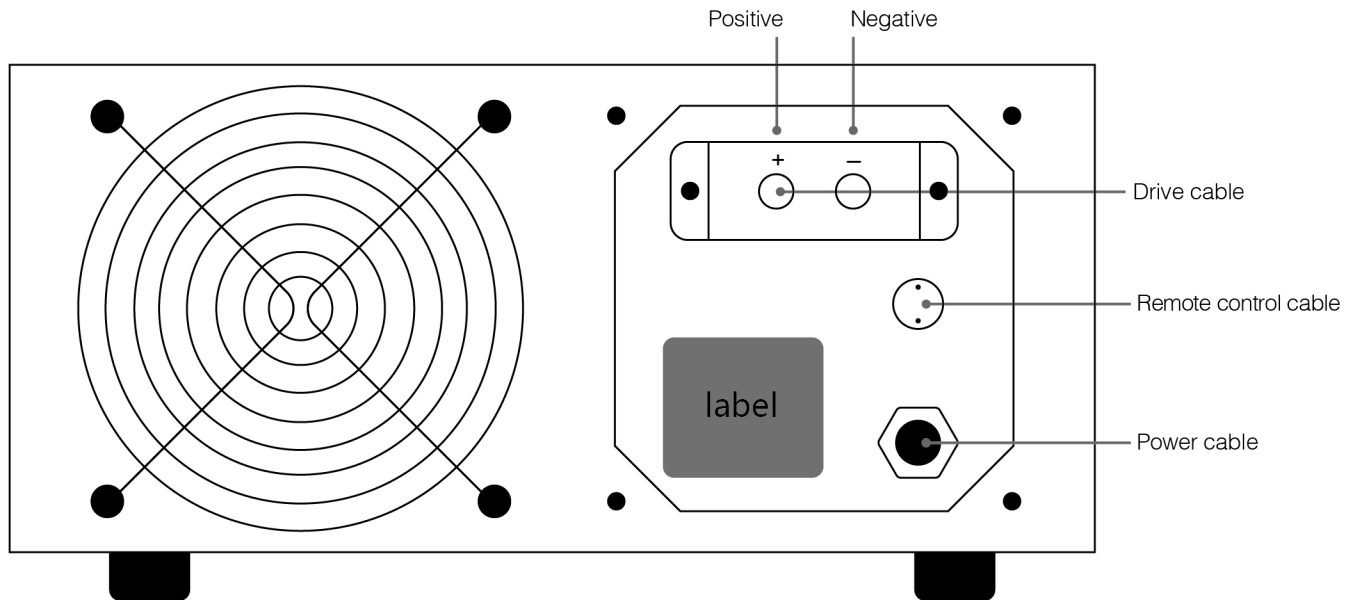


Figure1.1 Generator rear view

Built-in type: There is no other extra part, just connect the power cord.

The color of the standard power cord exported by our company is:

Single phase: the red wire is the **L** , the blue wire is the **N** , and the yellow wire is the **E**.

Three phases: **Phase A:** Yellow **Phase B:** Green **Phase C:** Red **N wire :** Blue **E wire:** Yellow-green.

In order to ensure safety, the E wire must be normally connected. The machine with the plug does not distinguish the color of the power cord, as long as the power of the power supply is sufficient;

External type: The difference between the external type and the built-in type is that the driving part is separated from the main part, and the external main part is made of three-phase electric power and the generator is single-phase electric. The power cable connection is the same as the built-in type. The generator connection is divided into a remote control line and a drive line (the orange is positive and the blue is negative). If there is “+” or “-” on the line, the mark is the standard);

4. Steps and instructions

- Inject the cleaning solution to the minimum of half of the tank; if there is a filter circulation function, the filter tank should also be filled with liquid, and the cleaning tank liquid needs to be filled up.
- Set the working parameters (time, temperature, power): long press the adjustment button, the value will continue to change!

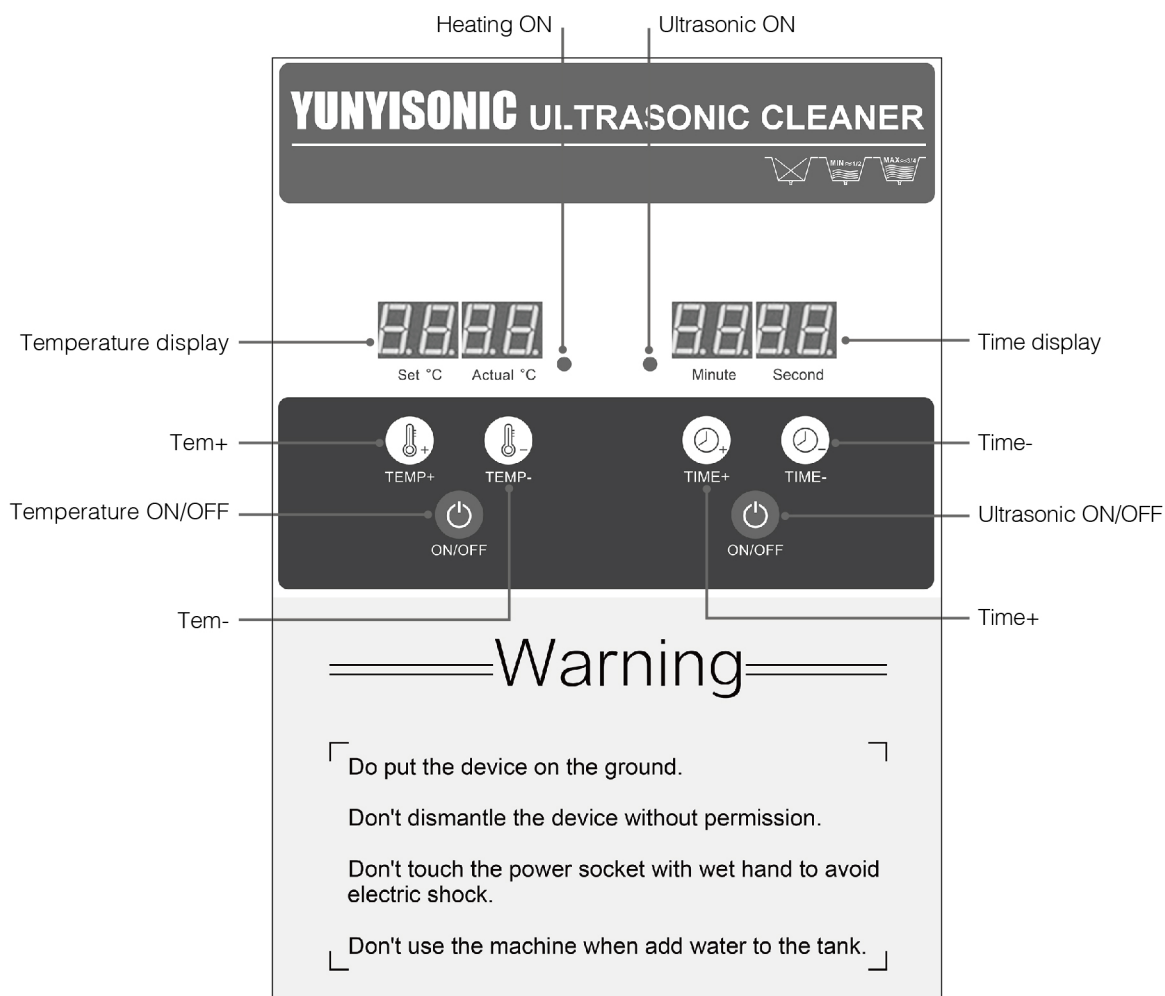


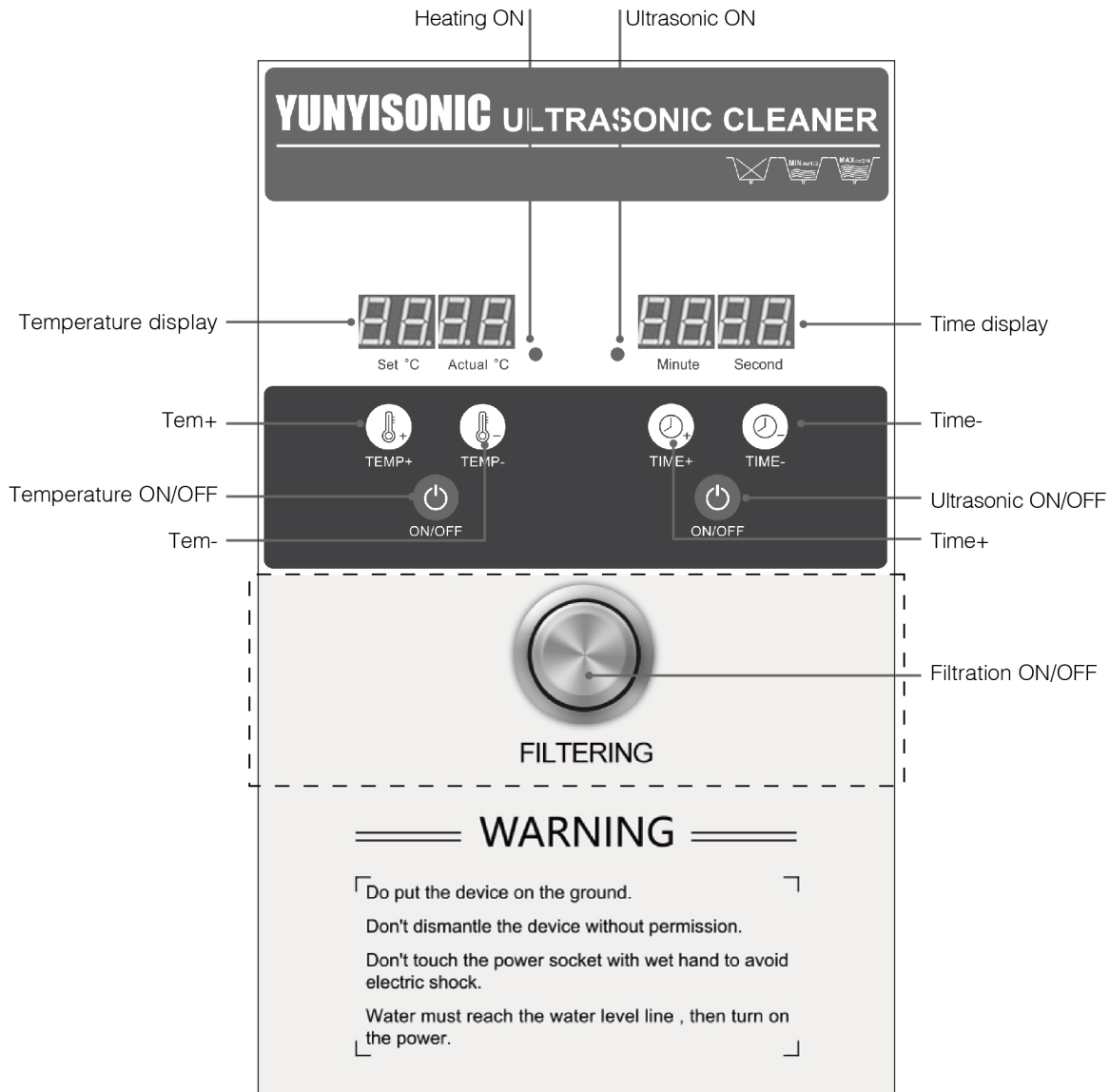
Figure 2.1 built-in type control panel diagram

Built-in Type Setting:

Time setting: Press the time “+” “-” button to set the required countdown time. When the time is added to 99 or reduced to 0, press the “+” “-” button to display the normally open display ON. The series supports 1 to 99 minutes countdown setting and normally open setting, the time display time is the set time, it will count down during work, and the indicator light will be on in the “time display window”.

Temperature setting: Use the temperature +, - keys to set the temperature value, and turn on the key to start the heating function. When heating, the “temperature on indicator” will light.

Power setting: Left-handed is small, right-handed is large, please set the position suitable for object cleaning! Do not twist when you set it.



The dotted area is a new option for configuring the filtration system

Figure 3.1

External Type setting:

Time setting: Press “ + ” “ - ” button to adjust the value and set the time **Unit:** second, minute, hour;

Heating Setting: Just need to adjust the temperature control button;

Power setting: Refer to the generator manual, set the power, and control mode; the factory setting is the remote control mode, only the power needs to be adjusted on the generator;

Warn: Above process must operated without the ultrasonic and heating work;

- **Preheating:** According to the cleaning process requirements, first turn on the heating function to let the liquid temperature reach the required temperature;
- **Put in the cleaning object:** Put the object to be cleaned into the cleaning solution, remember not to let the liquid overflow. For good cleaning effect, it is best to clean the single layer object.
- **Cleaning Start:** Press “ ULTRASONIC ” to start, and turn on the “ Filtration ” as your need.
- **End cleaning:** You can stop the ultrasonic operation midway. Just restart the ultrasonic start button again. When the cleaning work is completed, don't forget to turn off the power and clean the inner tank.

5.Operation tips

- Ultrasonic cleaners should be installed in a well ventilated and dry place;
- The machine should be kept away from heat sources;
- Do not splash liquid into the ultrasonic control cabinet;
- Do not splash liquid into the ultrasonic control cabinet
- Avoid collision and violent movement of the machine;
- The cleaning solution should be precipitated, filtered or replaced in time to ensure the cleaning effect;
- When there is too much sediment in the cleaning tank, it should be rinsed and removed in time to improve the durability of the cleaning tank;
- Regularly clean the electrical control section and equipment vents;
- Regularly test the insulation of the ultrasonic equipment and check the grounding wire;
- Test the power supply regularly to confirm that it meets the power requirements of the equipment;
- Equipment with a filtration circulation system, the filter element should be replaced regularly;
- Do not use for a long time, please drain the cleaning solution and clean the cleaning tank;
- When not in use for a long time, please turn it on once every month and work for half an hour;

6. Device maintenance

Device	Maintenance	Standard	Cycle	Remark
Generator	External type: Disconnect the power supply, unscrew the side screws of the generator, remove the upper cover, use a brush to gently brush the inside of the generator and blow off the dust with an air gun. Built-in type: Disconnect the power supply, remove the machine cover, brush with a brush and blow off the dust with an air gun.	There is no obvious accumulation of dust inside the generator.	once every 15 days	The maintenance cycle can be adjusted according to the specific use of the customer. If the equipment has reached the maintenance standard, no maintenance is required.
Transducer	Disconnect the power supply, disassemble the machine cover, and wipe it clean with a soft, lint-free cloth.	The surface of the transducer is free of visible dirt	once every 7 days	
Tank	Rinse with water and wipe with a soft cloth	The surface of the inner tank is free from visible dirt.	once every 3 days	
Drain Valve	Check for leaks	Inlet and drain are smooth, no water leakage when the valve is closed	once every 15 days	
Electrical Control parts and equipment vents	Disconnect the power, brush with a brush and blow off the dust with an air gun.	No obvious dust accumulation	once every 7 days	
Heating board	Disconnect the power supply, remove the machine cover, brush with a brush and blow off the dust with an air gun.	There is no obvious accumulation of dust on the surface of the heating plate.	once every 7 days	
Power cord Ground wire And interface	Test by eyes and power connect	No obvious broken	once every 15 days	
Casters	By eyes	Mobile and lightweight, effective braking	once every 15 days	
Filtration system	Remove the filter check	Can be based on frequency of use or on filtration requirements	once every 15 days	

7. Fault check and processing method

Ultrasonic no work

- a.** If the circuit board burns out, you need to open the steel plate on the side of the machine to see if the fuse on the main drive board is disconnected. The external type can be turned on directly to check the generator; if the fuse is found to be burned, please contact us directly.
- b.** If the wiring is loose, check the connection between the main drive board, the transducer, the adapter board and the control panel. If it is loose, you can fix it yourself. Please contact us if you need guidance.
- c.** The ultrasonic control signal is not reached, and the inspection steps of the built-in device are as follows:
 - 1. Whether the display panel is normal, the ultrasonic indicator lights up when the ultrasound is turned on;
 - 2. Check if the relay board is open, and the sound of the relay is normal through the switch;
 - 3. Visually check if the wiring is loose. If there is no result, please contact the company for after-sales processing;
- d.** If the above three points are not the cause of the ultrasound does not work, please contact the company directly after sales;

Abnormal Display

Generally, due to damage to some components on the display panel, the panel is exposed to water when the machine is working. If it affects the use, please contact us. We will replace you with a new display panel for free during the warranty period as long as it is not damaged by water ingress;

Heating no work

- a.** Loose wiring, built-in equipment: check the wiring between the control panel, adapter plate, contactor, and heat pipe.
External equipment: check the wiring between the thermostat, the contactor and the heating pipe, and generally repair it by yourself;
- b.** The controller is faulty. When the heating is turned on, the heating indicator lights up, indicating normal;
when the heating is turned on, the relay and contactor on the adapter board have sound, indicating normal.
- c.** If the heating tube is faulty, the heating tube can generally see if there is any damage, as long as there is no abnormality at the joint of the heating pipe;
- d.** When all the above are normal, it can be inferred that the contactor is damaged;

Display is not powered

- a.** Built-in type device, first confirm whether the power cord of the machine has electricity, please use tools to measure, such as a multimeter; then check whether the wiring of the power supply, adapter board, and control panel is loose. If the multimeter check shows normal 5V power, you can infer the control board Fault; if there is no power, it is inferred that the adapter plate is damaged.
- b.** External type device, confirm whether the power cord of the machine has electricity, please use tools to measure, such as a multimeter

Weak power

- a.** Ultrasonic drive failure, when the ultrasonic operation, only add the cleaning solution, after 2 minutes, if it is obvious that the ultrasonic strength is weak, if the water surface becomes calm, please contact us;
- b.** When the concentration of the stain in the cleaning solution is too high, the ultrasonic cleaning strength will be significantly reduced, please replace the liquid;
- c.** The workpiece is placed incorrectly. When the cleaning object is placed in the cleaning tank, it will feel that the cleaning power is not as large as before. This is normal.

Filtration system no work

- a.** The control system is not normal. 1. Turn on the filter cycle. The indicator light is on, indicating normal. When the sub-tank level is higher than the liquid level sensing head, the two ends of the liquid level device continuously conduct water. 2. Turn on the filter cycle and the contactor has a sound indicating normal.
- b.** If the motor is faulty, make sure that the motor is powered. If the motor does not rotate, the motor is broken.

8. Schematic diagram of the structure and electrical schematic

Built-in type :

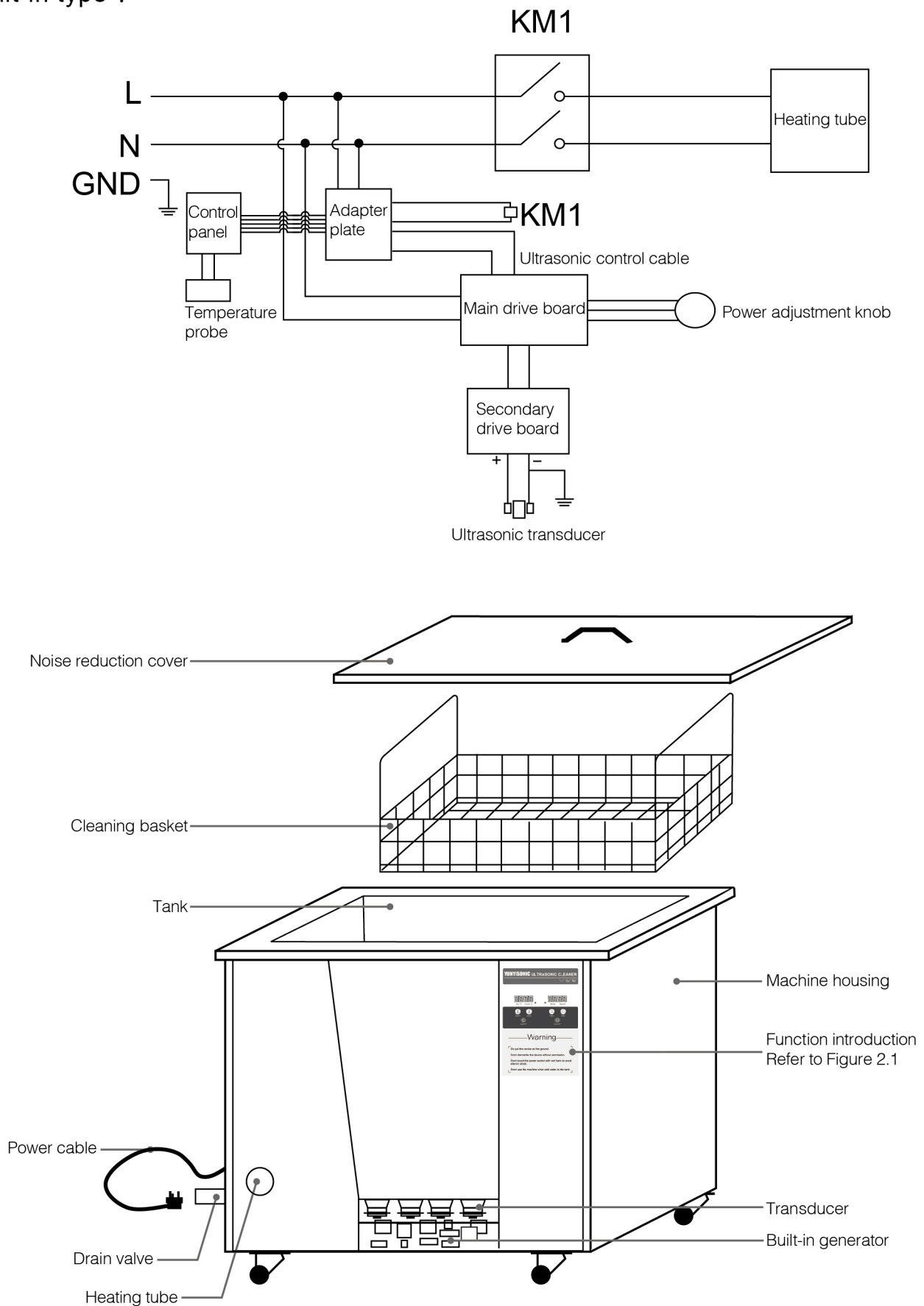


Figure 4.1 Built-in generator cleaning machine

External type :

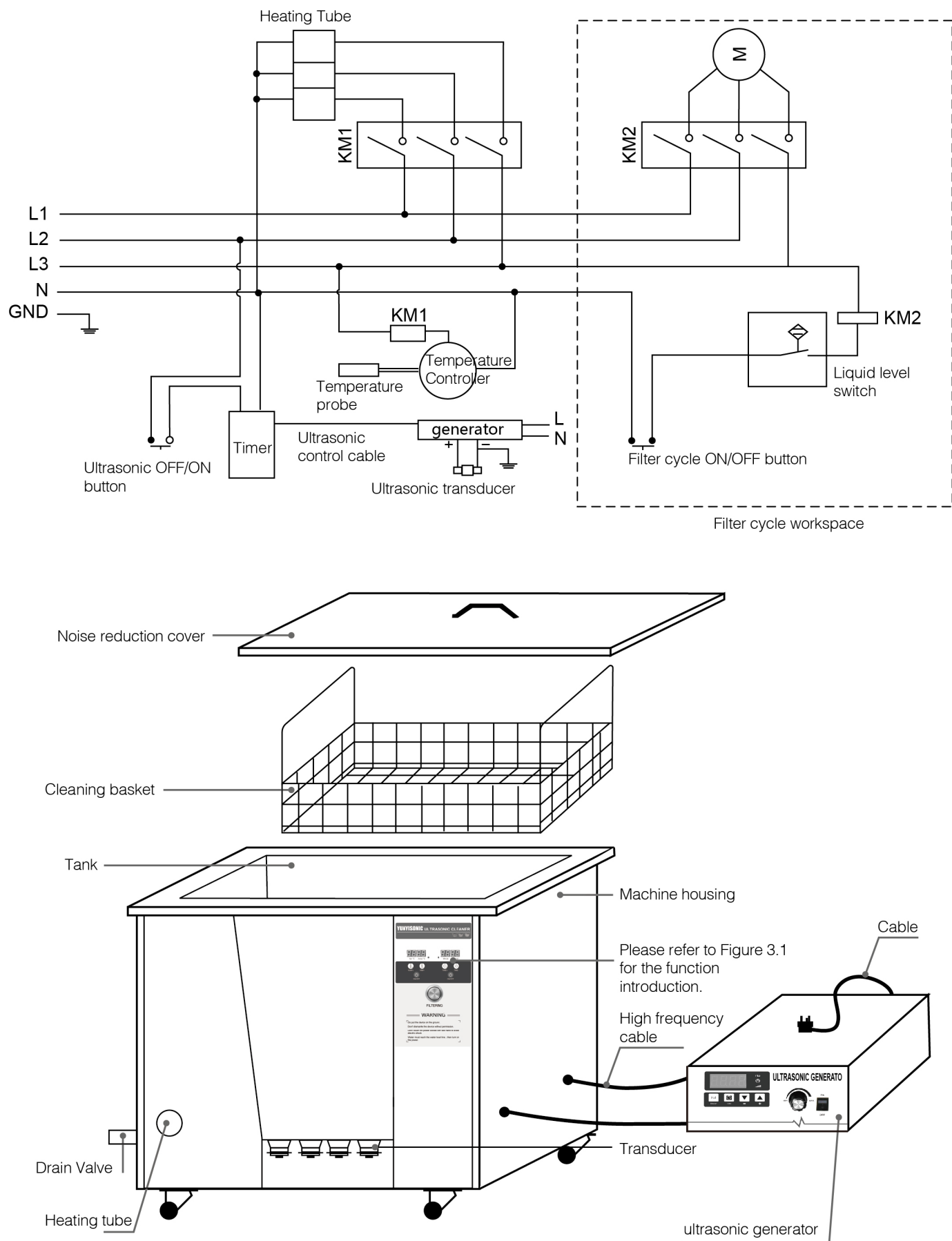
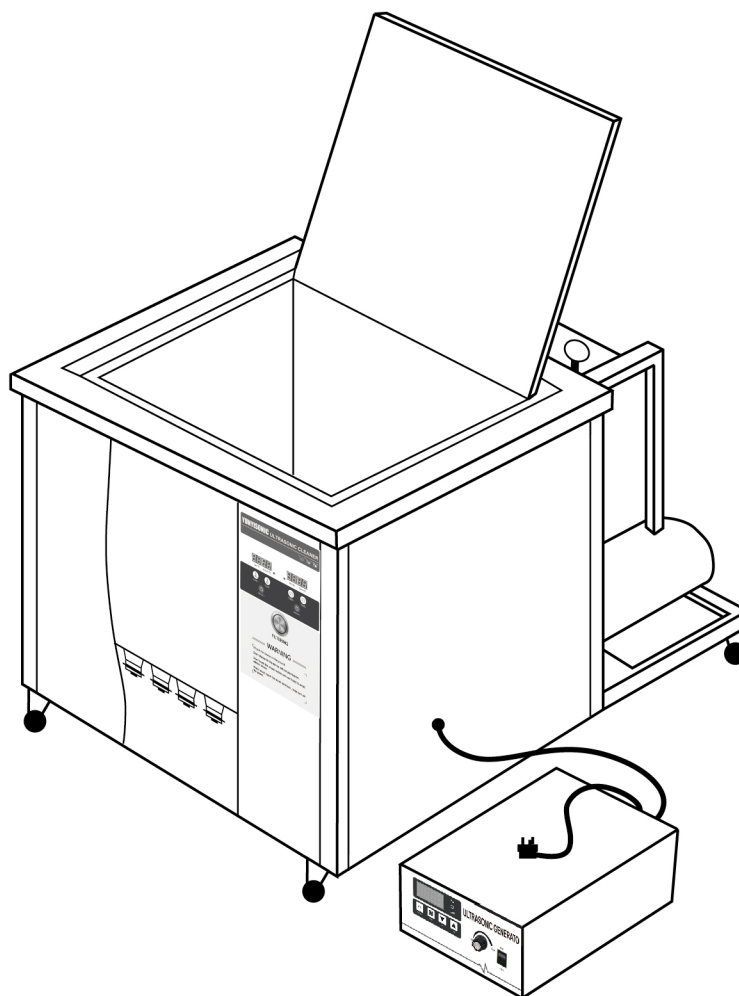


Figure 5.1 External generator ultrasonic cleaner

Schematic diagram of the machine with filtration cycle



Maintenance record			
	Maintenance solution	Replcement parts	Person in charge
0 1			
0 2			
0 3			
0 4			
0 5			
0 6			
0 7			
0 8			
0 9			
1 0			
1 1			
1 2			



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Professional teams provide design solutions for OEM/ODM

- Optional size, power and functions
- Frequency: 20/25/28/40/68/80/168/180/200 KHZ
- Voltage: Single-phase 110V/220V Three-phase 380V
- Material: SUS304/SUS316
- Other functions: Filtration, Spray, Bubbling, Drying, Lifting, Throwing, Condensation, Slow-pulling, PLC (Programmable Logic Controller) system, etc.

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