You produce...
Cleaning is Our job...

PLUSSONIC

“ PERFECT SOLUTIONS
FOR INDUSTRIAL WASHING ”

PLUSSONIC

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ABOUT US | PLUSSONIC

Plussonic is the leading producer and supplier of ultrasonic wash and tunnel type conveyored machines and it has been a trustworthy partner for more than 10 years. Our latest ultrasonic generators, metal components, extrusion molds, optical lenses, automotive parts, medical implants etc. Offer perfect cleaning and minimum wear for many parts.
Our working zones:

- Industrial ultrasonic washing machines
- Multistation ultrasonic washing machines
- Portable-modular ultrasonic units
- Tunnel type conveyor compressed washing tunnels
- Automatic robot carrying system washing machines
- Special machines for your project

You produce... Cleaning is **our** job...

ULTRASONIC CLEANING GROUP

SINGLE STATION MACHINES

MULTISTATION MACHINES

AUTOMTIC CONVEYING MHINES

MODULAR ULTRASONIC UNITS

CONVEYORISED WASHING TUNNELS

SPEACIAL PROJECT MACHINES

PLUSSONIC | ULTRASONIC WASHING MACHINES

Quality competition and production costs which are rising among producers in recent years has increased incrementally the need of surface cleaning machines. In many sectors like automotive, textile, medical, metal properties, food etc. the surface cleaning on products has become a must due to many reasons. We, Plussonic, we offer our clients a product range that can meet the needs of their any kind of surface cleaning. Ultrasonic wash is the most effective and degreasing method for indented and hardly accessible surfaces. We use our latest generation digital controlled ultrasonic power generators on ultrasonic washing machines which we produce on our own as Plussonic. This allows us to offer maximum cleaning quality with minimum wear on the product surface. It also provides savings with its low energy consumption.

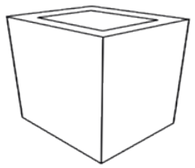
SECTORS USED

- Plating units
- Metal property
- Automotive
- Medical
- Textile
- Machining
- For maintenance purposes
- Food

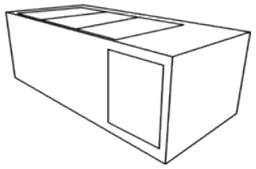
Being used in many other sectors.

ULTRASONIC WASHING MACHINE TYPESİ

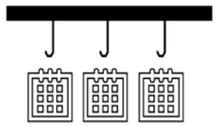
1- Single station ultrasonic washing machines



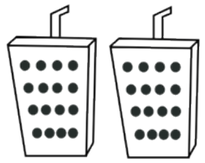
2- Multistation ultrasonic washing machines



3- Automatic robot carrying system ultrasonic washing machines



4- Modular ultrasonic units



1- SINGLE STATION ULTRASONIC WASHING MACHINES

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Single station ultrasonic washing machines provide only one cleaning process. Size of the parts to get cleaned; its features and quantity of the parts to get cleaned in a day that depending on the ultrasonic power, transducer placement and frequencies may vary. Washing volume vary between 40 liters to 900 liters in standard products. It is produced specially if higher volume is needed. Our products are standardized as; body and construction is AISI 304 quality and washing boiler is AISI 316L quality, made of stainless steel.

KEY FEATURES

- 28 or 40 kHz frequency option depending on the washing need
- 40-900 liters of washing volume (Bigger volumes are produces specially)
- High quality stainless steel design
- Thermostatic, configurable water heating feature
- Digitally controlled, powerful ultrasonic units
- Instant water temperature observation and control panel
- Instant ultrasonic power and frequency observation and control panel
- Different washing saving program options
- Sweep function
- High current, heat and parasite protection
- Liquid free design surface layer
- User-friendly easy disassemble and assemble side caps

SINGLE STATION MACHINE MODELS

ECO (40-120 l.)

PRO (100-400 l.)

MEGA (360-900 l.)

1- SINGLE STATION ULTRASONIC WASHING MACHINES

1- ECO SERIES TECHNICAL TABLE

Model		Eco 40	Eco 50	Eco 60	Eco 80	Eco 100	Eco 120
Yıkama Tankı Ölçüleri	Length	400	500	500	500	500	600
	Width	300	200	400	400	500	500
	Water level	300	500	300	400	400	400
Ultrasonic power (Watt)		600	1000	1000	1000	1000	1000
Number of transducers		12 / 12	18 / 20	18 / 20	18 / 20	18 / 20	20 / 22
(for 28 kHz / for 40 kHz)		28 / 40	28 / 40	28 / 40	28 / 40	28 / 40	28 / 40
Frequency (kHz)		4	6	6	6	6	6
Digital thermostat		Yes	Yes	Yes	Yes	Yes	Yes
Digital timer		Yes	Yes	Yes	Yes	Yes	Yes
Filling		½ Valve	½ Valve	½ Valve	1 Valve	1 Valve	1 Valve
Drainage		1 Valve	1 Valve	1 Valve	1 Valve	1 ¼ Valve	1 ¼ Valve
Basket		Yes	Yes	Yes	Yes	Yes	Yes
Isolation		Yes	Yes	Yes	Yes	Yes	Yes
Power control		Yes	Yes	Yes	Yes	Yes	Yes
Sweep		Yes	Yes	Yes	Yes	Yes	Yes
Front panel		Digital	Digital	Digital	Digital	Digital	Digital

2- PRO SERIES TECHNICAL TABLE

Model		Pro 100	Pro 150	Pro 160	Pro 200	Pro 250	Pro 270	Pro 400
Washing tank dimension	Length	500	600	800	800	1000	600	800
	Width	500	500	500	500	500	500	600
	Water level	400	500	400	500	500	900	900
Ultrasonic power (Watt)		1000	2000	2000	2000	3000	3000	4000
Number of transducers (for 28 kHz / for 40 kHz)		18 / 20	36 / 40	36 / 40	36 / 40	54 / 60	54 / 60	72 / 80
Frequency (kHz)		28 / 40	28 / 40	28 / 40	28 / 40	28 / 40	28 / 40	28 / 40
Heater (kW)		6	6	6	6	12	12	18
Digital thermostat		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Filling		1 Valve	1 Valve	1 Valve	1 Valve	1 Valve	1 Valve	1 Valve
Drainage		1 Valve	1 Valve	1 Valve	1 ½ Valve	1 ½ Valve	1 ½ Valve	1 ½ Valve
Basket		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Busbar System		---	---	---	---	---	---	Optional
Isolation		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Power control		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweep		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Front panel		Digital	Digital	Digital	Digital	Digital	Digital	Digital

1- SINGLE STATION ULTRASONIC WASHING MACHINES

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3- MEGA SERIES TECHNICAL TABLE

Model		Mega 360	Mega 460	Mega 630	Mega 650	Mega 800	Mega 900
Washing tank dimension	Length	1000	1300	1000	1200	1300	1000
	Width	600	600	700	600	700	1000
	Water level	600	600	900	900	900	900
Ultrasonic power (Watt)		3000	4000	6000	6000	7000	8000
Number of transducers		54 / 60	72 / 80	90 / 90	108 / 120	126 / 140	144 / 160
(for 28 kHz / for 40 kHz)		28 / 40	28 / 40	28 / 40	28 / 40	28 / 40	28 / 40
Heater (kW)		12	18	24	24	24	30
Digital thermostat		Yes	Yes	Yes	Yes	Yes	Yes
Digital timer		Yes	Yes	Yes	Yes	Yes	Yes
Filling		1 Valve	1 Valve	1 Valve	1 Valve	1 Valve	1 Valve
Drainage		1 ½ Valve	1 ½ Valve	1 ½ Valve	1 ½ Valve	2 Valve	2 Valve
Basket		Yes	Yes	Yes	Yes	Yes	Yes
Busbar System		---	---	Optional	Optional	Optional	Optional
Isolation		Yes	Yes	Yes	Yes	Yes	Yes
Power control		Yes	Yes	Yes	Yes	Yes	Yes
Sweep		Yes	Yes	Yes	Yes	Yes	Yes
Front panel		Digital	Digital	Digital	Digital	Digital	Digital

These are the machines that enables to have more than one cleaning process in combined and successive way. These processes are like below:

Prewashing (Pressurized or circulation)

Ultrasonic wash

Passivation

Rinse (Ultrasonic 40 kHz)

Rinse (Pressurized)

Rinse (Circulation)

Water stripping

Drying (Vacuumed)

Drying (Fan)

Deciding on the cleaning process and cleaning order depends on the product to get cleaned. Machine size and the ultrasonic power which depends on the machine's size may vary depending on the parts to get cleaned, and the quantity of parts to get cleaned in a day. Our products are standardized as; body and construction is AISI 304 quality and washing boiler is AISI 316L quality, made of stainless steel.

KEY FEATURES

- Choosing the correct process for the need
- Very gently wash with 28 and 40kHz frequency at the same time
- High-quality stainless-steel design
- Thermostatic, configurable water heating feature
- Digital controlled, powerful ultrasonic units
- Instant water heat observation and control panel
- Instant ultrasonic power and frequency observation and control panel
- Sweep function
- Thermostatic, configurable drying fan
- High current, heat and parasite protection
- User-friendly easy disassemble and assemble side caps

PROCESSES:

Prewashing
It shortens the total washing time before ultrasonic wash by removing the dirt on the surface of the machine part and prolongs the life of ultrasonic washing tank.

Ultrasonic Wash
Ultrasonic wash removes the surface dirt, grease and other dirt remains by creating cavitation on the products surface with sound waves emitted in water. It provides pure cleaning even on the most difficult surfaces. Thus, it gives a gentle cleaning at this stage. It can be applied as 28 kHZ, 40 kHZ or both in the same time.

Rinsing
Oil and dirt solvent chemicals during ultrasonic wash may cause stains on the part's surface if it won't get rinsed. Water is given with circulation method on to surface of the parts to clean stains. 40 kHz ultrasonic is used for gentle wash.

Passivation
Applying passivation chemical optionally on the material surface to ensure corrosion resistance to the product.

Drying
The product is dried by blowing hot air on its surface with the help of resistance and fans. Vacuum drying or water scrapers can be used depending on the need.

Multistation Machines technical chart

Model		2P 50.40.40	3P 50.40.40	4P 50.40.40	5P 50.40.40
PROCESSES		➢ Prewashing ➢ Ultrasonic Wash	➢ Prewashing ➢ Ultrasonic Wash ➢ Rinsing	➢ Prewashing ➢ Ultrasonic Wash ➢ Rinsing ➢ Passivation	➢ Prewashing ➢ Ultrasonic Wash ➢ Rinsing ➢ Passivation Drying
Washing tank dimension	Length	500	500	500	500
	Width	400	400	400	400
	Water level	400	400	400	400
Ultrasonic power (Watt)		1000	1000	1000	1000
Number of transducers (for 28 kHz / for 40 kHz)		18 / 20	18 / 20	18 / 20	18 / 20
Frequency (kHz)		28 / 40	28 / 40	28 / 40	28 / 40
Heater		Yes	Yes	Yes	Yes
Digital thermostat		Yes	Yes	Yes	Yes
Digital timer		Yes	Yes	Yes	Yes
Filling		1 Valve	1 Valve	1 Valve	1 Valve
Drainage		1 Valve	1 Valve	1 Valve	1 ½ Valve
Basket		Yes	Yes	Yes	Yes
Isolation		Yes	Yes	Yes	Yes
Power control		Yes	Yes	Yes	Yes
Sweep		Yes	Yes	Yes	Yes
Front panel		Digital	Digital	Digital	Digital

3- ROBOT CARRYING SYSTEM ULTRASONIC WASHING MACHINES

This type of machines minimizes the cleaning time and offers zero touch cleaning opportunity with its fully automatic multistation ultrasonic washing. They are mostly preferred in fast production and hygiene required production areas. They are used in the sectors like medical, food, automotive etc.

Transfer of the parts to get cleaned between stations are provided by the robots with PLC controls. Carrying hooks carry the baskets with zero touch from first station to exit conveyor.Due to fully programmable PLC controlled system, parameters below can be set according to the need:

- Presence time in the stations
- Carrying speed
- Water temperatures
- Drying temperature and time
- Moving distances of baskets in two different axes
- Opening and closing timings of entrance and exit caps
- Being able to save different washing programs

Total washing process can be foreseen on the system after defining the parameters above with the help of simulation program. This provides an advantage to clients on business planning.

3- ROBOT CARRYING SYSTEM ULTRASONIC WASHING MACHINES

Safety Precautions

Many safety precautions have also taken in the system:

- Water level sensors prevents any breakdown by working ultrasonic units in a water free circle.
- Emergency stop buttons are available on machine's distant points.
- Collision prevention system which enables to shut down system automatically during basket or cover jamming.
- High temperature and parasite protection on ultrasonic units.
- Searchlight that indicates the system's working condition.
- Accidents prevented by transparent cabinet which enables to observe inside.
- A booklet that includes safety tags and safety instructions.

Each process below may include in the fully automatic robot carrying system machines:

Prewashing (Pressurized or circulation)

Ultrasonic wash

Passivation

Rinse (Ultrasonic 40 kHz)

Rinse (Pressurized)

Rinse (Circulation)

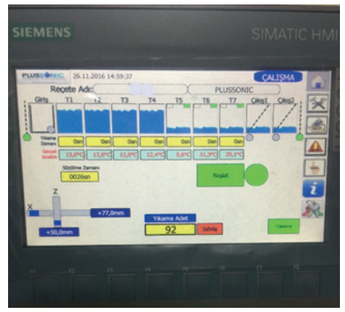
Water Stripping

Drying (Vacuumed)

Drying (Fan)

Accessories and Add-ons (Optional)

- Vacuum drying
- Filtration unit
- Gently filtration unit
- Oil stripping
- Water purification unit
- Automatic chemical dosage unit

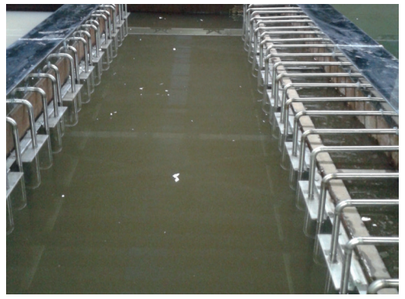


4- MODULAR ULTRASONIC UNITS

These are the modular and submersible units that clients who already has a washing tank prefer. These units can be produced in different geometries and Powers depending on the tank to be applied. Although they are lower investment cost, it offers high cleaning quality with Plussonic's new generation digital generators.

KEY FEATURES

- 2 mm diam and AISI 316L or 316 Ti quality stainless material
- Control panel with digital display
- High current and parasite protection
- Heat protection
- Sweep function
- Power control
- Assembly work is included.



MODEL- DIMENSION	PLUS SONIC 40.40	PLUS SONIC 50.40	PLUS SONIC 75.25	PLUS SONIC 100.25
DIMENSION	400x400x90	500x400x90	750x250x90	1.000x250x90
ULTRASONIC POWER	800 W	1.000 W	1.000 W	1.200 W
NUMBER OF TRANSDUCERS	15	18	18	20
FREQUENCY	28/40 kHz	28/40 kHz	28/40 kHz	28/40 kHz
POWER CONTROL	YES	YES	YES	YES
SWEEP	YES	YES	YES	YES
FRONT PANEL	DIGITAL	DIGITAL	DIGITAL	DIGITAL

CONVEYORED TUNNEL TYPE PRESSURIZED WASHING MACHINES

They are mostly preferred by the clients who does multiple production and whose daily production number is high. Products to be washed go through different processes by proceeding on a line. Machine size, conveyor speed, processes and order may Show an alteration depending on the client's need.

The most important factors while choosing a machine:

- Geometry and size of the washing product
- Quantity of the product (product/hour)
- Dirt type on the part
- Measurements of the machine's placement area.

KEY FEATURES

- Suitable process choice for the need.
- High-quality stainless-steel design
- PLC control unit on each model
- Configurable conveyor speed
- Instant water temperature observation and control panel
- Washing time simulation
- Configurable water heating feature from PLC monitor
- Configurable drying fan from PLC monitor
- High current, heat and parasite protection
- User-friendly easy disassemble and assemble side caps
- Patented circulation system which provides water saving
- 5 stage filtration and oil separator system
- Vapour recovery system

CONVEYORED TUNNEL TYPE PRESSURIZED WASHING MACHINES

After determining the client's need, choice is made from the processes below and suitable order is set:

Prewashing (Pressurized) → Alkali Wash (Contains cleaning chemicals) → Rinse (Pressurized) → Water stripping with DI water → Drying (Fan

PROCESSES:

Prewashing
It shortens the total washing time before the main washing process by removing the dirt on the surface and prolongs the life of next tanks. Prewashing is done with pressurized hot water and/or detergent addition.

Washing
It deep cleans the grease and residues on the products surface by spraying the cleaning chemical and hot water in a pressurized way. It provides cleaning even on the most difficult surfaces thanks to the nozzles which are specially put on the product. So, at this stage, all the dirt; grease and residuals are cleaned from the product.

Rinsing and /or Rinsing with distilled water
Oil and dirt solvent chemicals during ultrasonic wash may cause stains on the part's surface if it won't get rinsed. Water is given with pressurized spraying method on to surface of the part to clean stains. Water quality is highly important during this process. Stains may be left if any dissolved lime or other minerals gets dried on the part's surface. For this reason, an additional water purification system may need to be used.

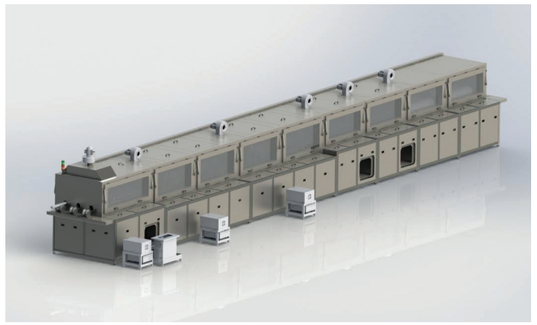
Passivation
Depending on the need, applying passivation chemical on to the material's surface helps it to gain corrosion resistance.

Water stripping
These are the pressurized air blowing air blades to prevent water transfer between processes and to shorten the drying time.

Drying
The material gets dried completely by blowing hot air to its surface with the help of resistance and fans.

HYBRID TUNNEL

In addition to pressurized washing processes, these are the machines which can be used with ultrasonic wash and ultrasonic dry processes. It is preferred for the special washing needs. Its main reason preference is gentle washing need for serial production parts.



PROJECT MACHINES

These are the machines which the process is determined with you and the need of different solution offers according to special customer demands and technical specification.

MACHINE MAKING PROCESS

1. **ETUDE**
Needs are revealed by proper examination during and after the offer phase according to the content of the project.

2. **PROJECT DESIGNING**
Allied with the provided data, equipment are chosen and draft designing are made according to the alternative solutions.

3. **DESIGN**
Detailed designing is made by choosing the most appropriate choice among alternatives and meetings are made with customers periodically about designing. Additions can be made according to customer's advice if needed.

4. **SMULATION**
If there are some vagaries according to the project's situation, it is continued with modelling by simulation support and realistic approach.

5. **MANUFACTURING**
Manufacturing process begins right after designing and customer confirmation. The process is followed according to washing sensitivity and time limitation.

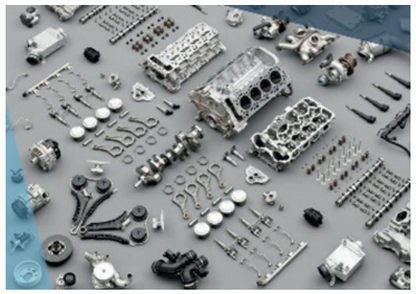
6. **PRE-ADMISSION**
Tests are made with the arrival of samples and revisions are made if there is any.

7. **SETUP**
After the customer's delivery confirmation, setup of the system is made where it is planned.

8. **COMMISSIONING**
Regulations are made according to the installation requirements and final acceptance process begins with the new tests. Chemical process support is provided if there is a need.

9. **EDUCATING**
The last acceptance is completed by giving the needed education to the system operators and

10. **MAINTENANCE**
Needed maintenance process is followed for the warranty products according to the Project criteria.



AUTOMOTIVE

It is used for the cleanings of the manufactured products in automotive key industry and sub-industry. It is used for the cleaning of the all parts used in the automotive manufacturing such as steel, aluminum, iron plate, bell metal, sawdust manufacturing parts, engine block, closing panel, crankshaft, boot, campane, final drive, clutch pedal, wheel rim, piston, casing, ring, stud, steering arm, tie rod, clutch pedal box etc.

AVIATION AND DEFENSE INDUSTRY

It is used for the gentle surface cleaning before painting, covering, and mounting of the products, which are manufactured for defense industry, such as steel, aluminum, iron plate, bell metal, sawdust manufactured parts etc.

METAL GOODS

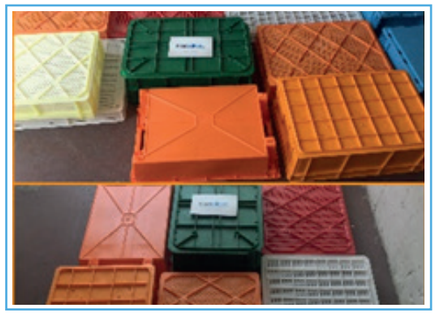
It is used for the gentle surface cleaning before painting covering, and mounting of the products such as steel, aluminum, iron plate, bell metal and sawdust manufactured parts. Steel cooker, aluminum cooker, sink, cutlery and cooking utensils, armature, kitchen and bathroom accessories, furniture accessories, White appliances accessories, lightning armatures and accessories.

KITCHEN UTENSILS

Sink washing tunnels, Cooker washing tunnels, cutlery

MEDICAL

It is used for the maintenance cleaning purposes of all surgical and operating room instruments; dental implants, body implants and prosthesis production.



FOOD INDUSTRY

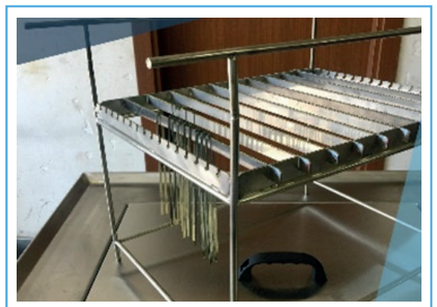
It is used for the cleanings of all carrying cases of meat, fish, chicken, dairy products, fruits and vegetables, sweets and bakery products; food preparing equipment, tray, pastry, cake and chocolate molds etc.

ULTRASONIC WASH BEFORE PLATING

All the industrial dirt is removed on metal products with ultrasonic wash. Ultrasonic wash is a quality enhancing technic before covering and painting. Besides ultrasonic wash section; manual or fully automatic covering facilities production is done by our company depending on the user's demand.

CLEANING FOR MAINTENANCE PURPOSES

It is used for the all cleaning and maintenance need parts such as mold; engine parts washing, filter washing, anilox washing, printing rollers washing, aluminum injection, rubber molds, PVC profile molds, air coolers, heat exchangers, airframe integration, stencil filters, ship engine parts, train-subway engine parts, heavy construction equipment part, filter cleaning, textile machine and apparatus cleaning.

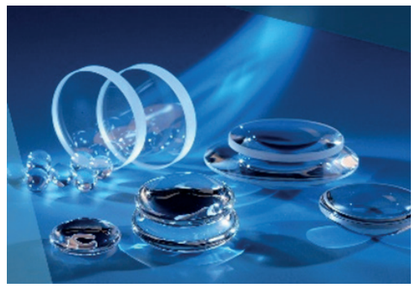


TEXTILE

It is used for the textile yarn manufacturing and weaving equipment such as dropper power, nire, crest, polymer filters, rotor etc.

ENERGY

It is used for the cleanings of filters, air coolers and engine parts.

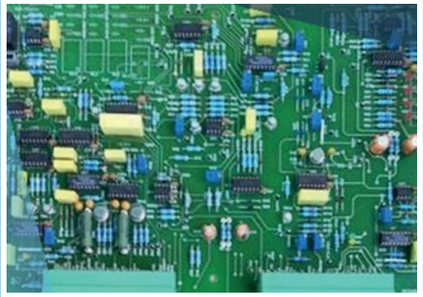


JEWELRY OPTICS

It is used for the cleanings of eyeglass and frames, lens wash, gold and silver chains, jewelry, accessories, bijouterie and watch parts.

NAVAL MARINE

It is used for the cleanings of filter washing machines, air cooler for shipyards, engine parts, fuel injectors and pistons that are used in a ship.



ELECTRONIC

It is used for the cleaning of PCB circuit boards and solder residues.

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İ.O.S.B. ESKOOP Sanayi Sitesi C7- 2 Blok No 421-423 Başakşehir / İstanbul

www.plussonic.com | info@plussonic.com

+90 212 485 11 30