



WAVEULTRA

Ultrasonic Cleaning Systems for Industries

Table Top | Single Stage | Multistage | Fully Automated



www.waveultra.in



Waveultra for Industries

Waveultra specializes in the design and manufacturing of customized ultrasonic cleaning systems tailored to meet the specific needs of various industries.

We understand that different industries have unique cleaning requirements. Our engineering team works closely with clients to analyze their specific needs and customize systems accordingly. This ensures that the cleaning process is not only effective but also efficient for the given application.

Our systems are capable to incorporate multiple stages of ultrasonic cleaning. Each stage is strategically configured to address different contaminants, ensuring a thorough cleaning process. This capability is particularly beneficial for industries with complex or varied cleaning challenges.

Waveultra is at the forefront of incorporating the latest technological advancements in ultrasonic cleaning. Our systems utilize state-of-the-art ultrasonic transducers, frequency modulation, and control systems to optimize cleaning performance. The fundamental principle behind ultrasonic cleaning lies in the controlled formation and collapse of these bubbles which dislodges contaminants.

About us

Waveultra, founded in 2008, has built a strong reputation as a leading provider of Ultrasonic Cleaning systems designed for diverse industries. Our core commitment lies in the production of cutting-edge technologies that cater to precision cleaning requirements across various sectors.

At the heart of our success is a dedicated engineering team that brings expertise and innovation to the forefront. The team is complemented by an extensive supplier network, enabling us to source high-quality materials and components for our cleaning systems. The versatility of our capabilities positions Waveultra as a reliable and trusted partner, ready to collaborate with you to meet your specific precision cleaning needs. With a cumulative experience of over two decades in the component cleaning industry, our talented and effective team understands the nuances and demands of the market. This wealth of knowledge allows us to stay at the forefront of technological advancements and deliver solutions that exceed industry standards.

Our operations are conducted within a state-of-the-art manufacturing facility spanning over 40,000 square feet. This facility is equipped with market-leading technology, ensuring that our products are not only efficient but also on the cutting edge of innovation. This commitment to excellence in both manufacturing processes and technological capabilities sets us apart in the ultrasonic cleaning industry. Whether you operate in healthcare, manufacturing, electronics, or any other industry with precision cleaning requirements, Waveultra stands ready to be your preferred partner.

Our dedication to quality, innovation, and customer satisfaction underscores our mission to provide the best ultrasonic cleaning solutions tailored to your unique needs.

Ultrasonics 101

What is Ultrasonic Cleaning?

Ultrasonic cleaning is a highly efficient and precise method employed for cleaning various objects and surfaces. This technology harnesses the power of high-frequency sound waves to generate microscopic bubbles within a specially formulated cleaning solution. The fundamental principle behind ultrasonic cleaning lies in the controlled formation and collapse of these bubbles.



High Frequency
Sound Waves



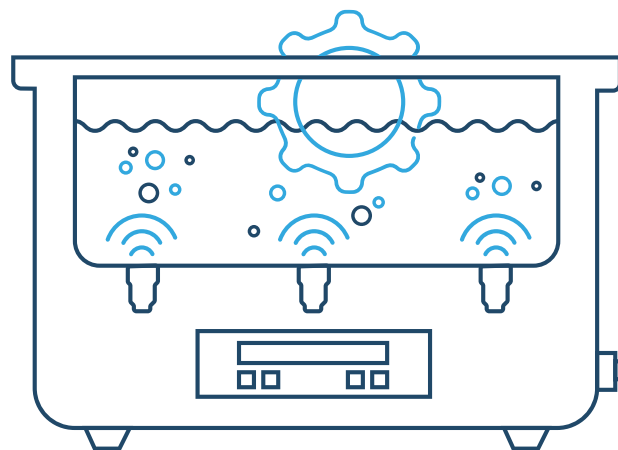
Microscopic
Implosion



Precision
Cleaning



Consistent
Results



Ultrasonic Cleaning for Industrial Applications



In manufacturing, Ultrasonic Cleaning is the preferred high-precision cleaning technique that is designed to remove surface contamination from products completely and rapidly. It can be incorporated at various stages, such as raw material preparation, intermediate manufacturing, or before finishing and packaging.

The ultrasonic cleaning process design depends on factors like the component or product type, material, surface quality, contamination type, and required cleanliness level (e.g., particle size and Millipore values). Ultrasonic cleaning ensures product quality, operational efficiency, safety, and environmental compliance, making it a crucial aspect of manufacturing.

How is Ultrasonic Cleaning Unique?

- A safe and reliable method of cleaning as there is no direct human contact required with the cleaning solvents.
- Delivers a great cleaning effect for deep holes, slits and hidden spots of workpieces.
- The process doesn't damage the products, unlike manual or chemical cleaning which causes mechanical wear and chemical corrosion.
- Ultrasonic cleaning allows the users to clean more parts with less labour. Also, multiple parts can be cleaned at the same time, and with marginal effort.



Precision Cleaning



Rapid Cleaning



Wide Applicability



Tailored options



Quality Assurance



Environmental Compliance



Non-Damaging Process



Safety Interlocks

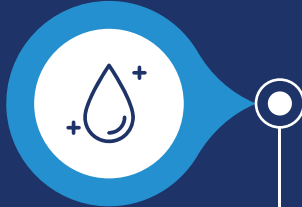


Efficiency and Labor Savings

Customised Multi Chamber Ultrasonic Cleaning System

Washing

- High Pressure Jet
- Rinsing



Cleaning

- Ultrasonic Cleaning



Rinsing

- High Pressure Jet
- Rinsing



Drying

- Air Blade Wiping
- Hot/cold air circulation



RPO

- RPO Dipping



Stages:

- **Ultrasonic Cleaning** is a crucial step where items to be cleaned are immersed in a cleaning solution within the ultrasonic tank. The machine then generates high-frequency sound waves and that leads to cavitation.
- **Rinsing** is used as a pre-processing or post-processing stage to gently remove any cleaning agent or residue deposited on the product's surface as part of the cleaning process by dipping the parts in Cleaning media or Hot water with additional agitation if required.
- **High-Pressure Jet Wash** is mostly used as a pre-cleaning process to remove contaminants of larger sizes such as metal burr, chips or debris, physically stuck to the product surface by spraying cleaning media or water at high pressure from various directions.
- **Circulation based Drying** offered in 2 options, Hot Air Circulation, mostly used in Aqueous Cleaning processes & Cold Air Circulation, mostly required for solvent based cleaning processes.
- **Air Blade Wiping** offered mostly as a pre drying stage for removing large water droplets, thus assuring stain free drying process.
- **RPO Dipping** is opted post-cleaning & drying. The process involves dipping the products in a Rust preventive oil (RPO) to prevent oxidation issues during storage and to increase the product's shelf life.

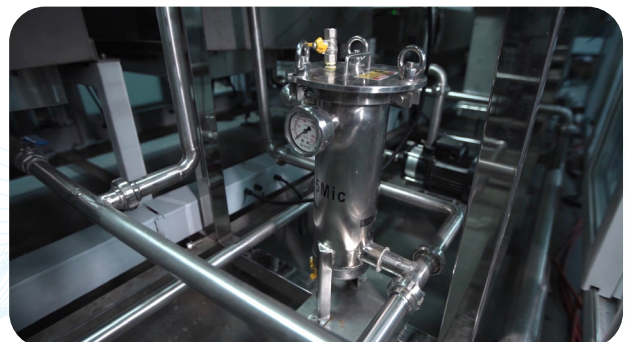
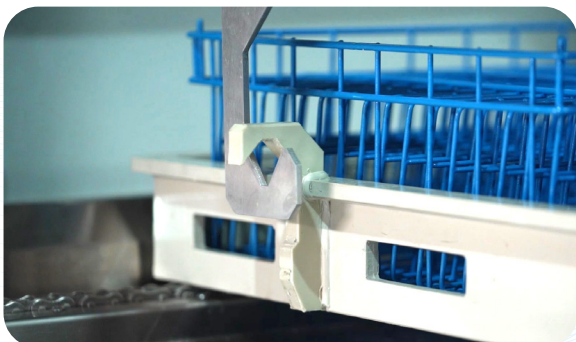
Highlights:

- ✦ High grade ceramics based, PZT type ultrasonic transducers.
- ✦ Auto lubrication system for hassle free lubrication of automation modules.
- ✦ Indirect contact ceramic heaters with digitally monitored, pre-calibrated temperature controllers.
- ✦ Advanced Microprocessor based Ultrasonic Generators of various power options, with inbuilt auto-calibration feature.
- ✦ Water or cleaning media circulation & treatment systems designed using cutting-edge level sensors (fork type or mechanical float type), pressure pumps (Grundfos), filtration units (SS304 Mesh or Cartridge with SS304 Housing) & solenoid valves.

Add-Ons & Customisation:

- Fully Automated systems with conveyORIZED Auto-loading and unloading of baskets or products.
- Automated Process monitoring & control with digital systems for control of temperature, pH & TDS/conductivity.
- Filtration systems designed to support cleanliness Millipore requirement.
- Ultrasonic dual frequency & intensity adjustment options integrated based on requirement.
- Immersible type Ultrasonic transducer box in place of tank bonded type.
- Ultrasonic Frequency options such as 27/40/60/80/120 kHz.
- Oil skimmer & separation unit.
- Drying can be opted for in a tank (dip type) or on a conveyor, depending upon requirement and compatibility.
- Basket/Tray design customization based on product design, complexity and placement.

Advanced Microprocessor Based Multi-frequency Generator



Milestones

CASE STUDY

Multistage Scada-based
Ultrasonic Cleaning Machine



FULLY AUTOMATED CUSTOMIZED CLEANING LINE

- Fully Automated 20+ stage pick/place system
- Multistage - Ultrasonic Cleaning, Rinsing & Drying option combinations
- Comprehensive sensor feedback for process control
- Conveyorised Bed-Type Jet Wash & Drying systems
- Customised tank size to meet production quantity
- Customised part holder/basket for precision handling
- Dual Frequency ultrasonic transducers for advanced cleaning options

Milestones

CASE STUDY

One of India's largest systems for GIS Plant



SEMI-AUTOMATED GANTRY BASED ULTRASONIC CLEANING LINE

- Fully Automated 3 stage process
- Use of 360 degree auto-rotating high-pressure jet wash
- Heavy Duty material handling system
- Easy loading & unloading dock for handling heavy parts
- Scada based process monitoring

Our Range of Products

Table Top Ultrasonic Cleaners | Marvel Range

Waveultra's compact Marvel Series ultrasonic cleaners are built to be sturdy and potent cleaning devices, catering to both heavy-duty and delicate cleaning needs for small components. These ultrasonic cleaners provide the most effective and consistent cleaning results. They can perfectly eliminate contaminants such as grease, debris, particles, and dirt when used in conjunction with the appropriate cleaning solution. The Marvel Series is available in 2 variants, Marvel-S(WMS) & Marvel-SR(WMSR).



Application

- Precision manufacturing parts
- Laboratory equipment
- Electrical & electronic parts
- Eyewear and lenses
- Optical devices
- Jewellery
- Wrist Watch case
- Dental instruments and accessories
- Hardware & machinery parts
- Maintenance and cleaning of tools

Single Stage Ultrasonic Cleaners | Zenith Range



Waveultra's state-of-the-art Single-Stage Zenith range of ultrasonic cleaners is designed to provide superior cleaning performance for a wide range of industries. The size of the ultrasonic cleaners largely depends on the volume and dimensions of the items to be cleaned. These cleaners usually come with standard tank sizes; however, the tank size can be accommodated as per the client's requirement.

Application

- PCB Cleaning
- Engine Part Cleaning
- Electronic Parts Cleaning
- Aircraft Component Cleaning
- Optical Component Cleaning
- Precision Parts Cleaning
- Jewellery Cleaning
- Mold & Dye Cleaning
- Watch Cleaning
- Metalworking Cleaning

Multistage Ultrasonic Cleaners | Manually Operated



Waveultra's manual multistage ultrasonic cleaners are versatile cleaning systems that are operated through pre-defined yet simple steps, thereby making it easy for the operator to run the machine. These cleaners are often used in industries where different cleaning solutions and processes are required for thorough and efficient cleaning of a range of items. Manual multistage ultrasonic cleaners typically consist of a series of tanks or chambers arranged in a sequential order. Each stage serves a specific purpose in the cleaning process, such as ultrasonic cleaning, high-pressure jet, degreasing, rinsing, and drying. Operators manually move the items through each stage, ensuring they undergo the necessary cleaning steps for the required duration.

Application

- Precision Parts Cleaning
- Metalworking & Machining
- Electronics Manufacturing
- Electronics Assembly Cleaning
- Automotive Industry

Multistage Ultrasonic Cleaners | Automated



Our automated ultrasonic cleaners are advanced cleaning systems that offer efficiency and consistency for various industries. We offer two types of automated ultrasonic cleaners, namely, semi-automated ultrasonic cleaners and fully-automated ultrasonic cleaners.

Our semi-automated ultrasonic cleaners offer a balance between manual and fully automated systems. These cleaners have a combination of automated and manual features. They often include conveyor systems for loading, moving, and unloading items.

Our fully automated ultrasonic cleaners are advanced cleaning systems that offer hands-free operation and complete automation of the entire cleaning process. These systems are designed to handle high-volume cleaning tasks efficiently and consistently, with minimal manual intervention required.

Fully automated ultrasonic cleaners are equipped with conveyor systems, robotic arms, or indexing mechanisms that handle the entire cleaning process from start to finish. These systems are often integrated with programmable controls and sensors to ensure precise cleaning parameters.

Application

- Automotive Industry
- Aerospace Industry
- Semiconductor Industry
- Electronics Assembly Cleaning
- Precision Parts Cleaning
- Mobile Phone Manufacturing

Industries



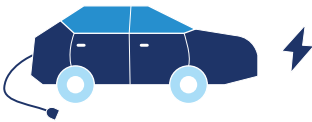
Semiconductors

Ultrasonic cleaning eliminates microcontaminants of micron size or larger from the surfaces of silicon wafers.



Aerospace

Ultrasonic cleaning removes residue and restores aircraft and rocket components, regardless of their size to ensure the safety of the aerospace industry.



Automotive & EV

Ultrasonic technology offers an effective solution for easily eliminating carbon deposits, grease, and various forms of dirt and contaminants from automotive components.



Machining Works

(Small Scale and Large-Scale Industries)

Ultrasonic technology provides an efficient solution for effortlessly removing carbon deposits, grease, and diverse types of dirt and contaminants from machined parts.



Scientific & Lab

Ultrasonic cleaning assists in removing any residues from previous procedures that might otherwise contaminate subsequent processes, ensuring instrument cleanliness.



Watch & Jewellery

Ultrasonic Cleaning not only aids in thorough cleaning but also enhances the innate brilliance and lustre of watch components and jewellery, whether they are made of metal or adorned with precious stones.

Clientele



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