

Ultrasonic Cleaner

Remove Contaminants

LaboSys® Ultrasonic cleaners, Multi-Stage Ultrasonic System - Ultrasonic Cleaning followed by Rinsing & Drying tank. LaboSys® Proprietary Ultrasonic Generation and Control System. LaboSys® Ultrasonic cleaners use high-frequency sound waves to clean objects by creating tiny bubbles that burst, dislodging dirt and grime. This method is effective for various items, including jewellery, medical instruments, and electronic components.



Key Components:

Generator: Provides the high-frequency electrical power to the transducer.

Transducer: Converts electrical energy into ultrasonic waves.

Cleaning Tank: Contains the liquid and the object to be cleaned.

Cleaning Solution: The liquid used in the tank, often containing detergents or other cleaning agents. Multi-Stage Ultrasonic System - Ultrasonic Cleaning followed by Rinsing & Drying tank. Multi Tank or Multi Chamber Ultrasonic Cleaning machines are ideal for production lines where usually a bulk quantity has to be cleaned daily. Multi Chamber Ultrasonic Cleaning machine becomes a part of the manufacturing line which enables voluminous cleaning of different types of parts.

How it works:

1. **1. Sound Waves:** The ultrasonic cleaner emits high-frequency sound waves into a cleaning solution.
2. **2. Cavitation:** These sound waves create tiny bubbles (cavitation) in the liquid.
3. **3. Bubble Bursting:** As the bubbles grow and collapse, they release energy that dislodges dirt and grime from the object's surface.
4. **4. Cleaning:** The cleaned object is then removed and rinsed to remove any remaining cleaning solution.

Applications:

- **Medical:** Cleaning surgical instruments, dental tools, and lab equipment.
- **Jewellery:** Removing dirt, grime, and buildup from jewelry pieces.
- **Electronics:** Cleaning electronic components and parts.
- **Industrial:** Cleaning parts and tools in various industries.
- **Other:** Cleaning eyeglasses, watches, and more.

Benefits:

- **Thorough Cleaning:** Ultrasonic cleaners can reach into hard-to-reach areas and crevices.
- **Gentle Cleaning:** The process is relatively gentle on delicate items.
- **Efficient:** Ultrasonic cleaning can be faster and more efficient than manual cleaning.

Environmentally Friendly: Some ultrasonic cleaners can use biodegradable solutions and reduce chemical usage. LaboSys® Ultrasonic cleaners use high-frequency sound waves to clean objects by creating tiny bubbles that burst, dislodging dirt and grime. This method is effective for various items, including jewellery, medical instruments, and electronic components.

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Ultrasonic cleaner working principle

Ultrasonic cleaning uses cavitation bubbles induced by high-frequency pressure (sound) waves to agitate a liquid. The agitation produces high forces on contaminants adhering to substrates like metals, plastics, glass, rubber, and ceramics. This action also penetrates blind holes, cracks, and recesses. Ultrasonic cleaners work by generating high-frequency sound waves that create tiny bubbles (cavitation) in a cleaning liquid. These bubbles then implode, creating localized shockwaves and intense heat that dislodge dirt and contaminants from objects submerged in the liquid.

Here's a more detailed breakdown:



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- 1. Sound Wave Generation:** An ultrasonic generator produces high-frequency electrical energy, typically in the range of 25-50 kHz, notes SOLTEC[®] Srl. This energy is converted into mechanical vibrations by an ultrasonic transducer.
- 2. Cavitation:** The transducer generates high-frequency sound waves, which are transmitted to the cleaning liquid. As the sound waves pass through the liquid, they create pressure fluctuations – periods of compression and rarefaction. During rarefaction (low pressure), small bubbles (cavitation bubbles) are formed.
- 3. Bubble Collapse and Shockwaves:** As the sound waves continue to pass, the pressure fluctuations cause the cavitation bubbles to expand and contract rapidly. Eventually, the bubbles collapse violently (implode), generating localized shockwaves, high temperatures and intense pressure.
- 4. Cleaning Action:** The shockwaves and high temperatures dislodge dirt, grease, and other contaminants from the surfaces of objects immersed in the liquid. The cleaning solution can also help to dissolve and remove contaminants.
- 5. Straight-forward Flow Effect:** Ultrasonic waves can also cause the liquid to flow along the direction of sound propagation, which further aids in cleaning.
- 6. Acceleration of Liquid:** The vibration of the liquid particles due to ultrasonic waves can also accelerate the liquid, enhancing the cleaning process.

Multi-Stage Ultrasonic System - Ultrasonic Cleaning followed by Rinsing & Drying tank

Multi Tank or Multi Chamber Ultrasonic Cleaning machines are ideal for production lines where usually a bulk quantity has to be cleaned daily. Multi Chamber Ultrasonic Cleaning machine becomes a part of the manufacturing line which enables voluminous cleaning of different types of parts. A usual Multi Tank Ultrasonic Cleaning Machine comprises of the following stages; Ultrasonic Cleaning followed by Rinsing & Drying tank. However, the stages can be customised and added up to 10 tanks or more depending upon the process requirement.

Types of Muti -Tank Ultrasonic Cleaning Machines:

1. Manual – Enables manual transfer of baskets from one tank to another
2. Semi- Automatic – Enables pneumatic dunking and push slide basket arrangement
3. Fully Automatic – Enables minimum human intervention with auto basket transfer from one tank to another

Models of Ultrasonic Multi Tank Cleaning Machines:

1. MSUS 2 – Ultrasonic Cleaning + Heated Rinsing
2. MSUS 3- Ultrasonic Cleaning + Heated Rinsing + Drying
3. MSUS 4 – Ultrasonic Cleaning + Ultrasonic Rinsing + Heated Rinsing + Drying



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Machine Features

1. Oil-Skimmer options
2. Low Level float sensors
3. Options of Filtration Unit
4. Low noise working modules
5. Duly Passivated tanks for longevity
6. Digital Timer & Temperature controllers
7. Fully insulated stainless steel working tanks

Ultrasonic System

Working Chamber
900mm X 900mm x 900mm
700ltr + 700ltr
Total 1400ltr Capacity

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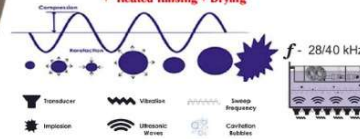
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Multi-Stage Ultrasonic System
MSUS 3- Ultrasonic Cleaning + Heated Rinsing + Drying

1. MSUS 2 - Ultrasonic Cleaning + Heated Rinsing
2. MSUS 3 - Ultrasonic Cleaning + Heated Rinsing + Drying
3. MSUS 4 - Ultrasonic Cleaning + Ultrasonic Rinsing + Heated Rinsing + Drying



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