



Zenith Ultrasonics

Waves at Work

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Ultramatic HV

High-volume Small Footprint Automated Ultrasonic Cleaner



The ULTRAMATIC HV is a fully-automated ultrasonic system which cleans, rinses, and dries parts at a high rate of speed, producing zero-residue cleaning results when equipped or attached to deionized water. It can be used to clean everything from industrial components to medical implant devices and everything in-between. The system incorporates a combination of cleaning and rinsing processes which are difficult and expensive to add to an automated multi-tank cleaning system, and a patented transfer system which accurately and consistently transfers baskets through the process while simultaneously maximizing ultrasonic cleaning effectiveness.

Multi-tank cleaning systems are composed of a series of stainless steel tanks, each of which is responsible for part of the clean/rinse/dry process.

Typically, a single ultrasonic tank is included to remove contaminants, 2 or more rinse tanks are included to remove detergent residues from the parts, and a drying tank is included to dry the parts. An automation system is included to move parts from tank to tank by lifting one basket at a time, and moving it to the next processing tank.

The speed of most multi-tank cleaning systems is largely dictated by the time required to dry parts. The drying stage is the "bottleneck" in most applications, since the time required to dry parts usually exceeds the time required to clean and rinse parts. The ULTRAMATIC HV takes advantage of this fact by performing both the cleaning AND rinsing of parts in a single tank, while another basket is drying in a 2nd tank. Since only 2 processing tanks are required, lengthy automation systems are not required, thereby reducing cost, and simultaneously reducing the space required in the facility. Add a unique and patented automation system, and the ULTRAMATIC HV is the result.

The ULTRAMATIC HV also includes our patented **Advantage** Automation System (US Patent 10,112,221). This exclusive Zenith design includes an oscillation platform in the dual-function ultrasonic tank which has the capability to intermittently oscillate parts being cleaned to drastically speed the cleaning process and flush loosened contaminants from within blind holes, recesses, or other part detail while simultaneously scanning objects through the ultrasonic energy pattern to produce a more evenly-distributed scrubbing action and prevent ultrasonic etching on sensitive parts such as machined aluminum. Most importantly, baskets are supported from overhead rather than underneath. This patented feature maximizes ultrasonic cleaning system performance since all ultrasonic energy emitted into the tank can be dedicated to cleaning parts rather than being absorbed and deflected such support structures.



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Batches of parts are placed into baskets which are loaded on the 3-position Automated Load Conveyor. Operators then assign a Recipe of Operation to each basket loaded using the included high-resolution wide-screen Touch-screen Operator Interface. Each basket can be processed using a different Recipe of Operation, allowing precise control of how each batch of parts is processed.

The system will automatically detect the presence of baskets and will quickly transfer the first basket into the ultrasonic cleaning tank. While in this tank, the parts are cleaned AND rinsed with a combination of the patented CROSSFIRE Multiple Frequency Ultrasonic System, Intermittent Oscillation to flush loosened contaminants from blind holes and threaded areas, and a pressure spray rinse to produce part cleanliness which exceeds that of most multi-tank cleaning systems. Since rinsing is performed in the same tank as ultrasonic cleaning, an ultrasonic rinse is included without having to pay extra to add ultrasonic components to a rinse tank, as is the case with a multi-tank cleaning system. Upon completion of the cleaning and rinsing processes, the first basket is transferred to the drying tank while the next basket starts the cleaning and rinsing process.

Once cleaning and rinsing are complete, the basket is transferred to the High-efficiency Drying Tank to be dried, while the next basket is transferred to the cleaning tank to perform cleaning and rinsing while the first basket is being dried. When the first basket is dried, it is ejected onto the 2-position Unload Conveyor for removal, while the strobe alerts operators of its presence. Typical processing speed when operating continuously is 10-15 minutes per basket, depending upon part designs and the system size purchased.



This system is also capable of preventing ultrasonic etching on sensitive components, the destructive removal of small amounts of material from the part which is shown in the photo to the left. Parts which are sensitive to such damage include electronic components, polished or machined aluminum, coated parts, and many others. The ULTRAMATIC HV can prevent damage to such components, an impossible feat for competitive system designs.

The ULTRAMATIC HV also includes Automated Rinse Water Quality Monitoring and Maintenance, which automatically adds fresh water to the rinse holding tank when water quality falls below acceptable levels, a Stainless Steel Filtration System to filter contaminants from the cleaning fluid, a Touch-screen Operator Interface with remote access capabilities, and many other features. Many options are available to further enhance the operation of this system.

The ULTRAMATIC HV is not only the most advanced automated multi-stage cleaning system, but is also manufactured for long-term reliability in the most abusive operating environments. The entire system is built with an easy-to-maintain simple design.

If your firm requires an automated multi-stage cleaning process and available space is small, speak to your Zenith sales representative about the ULTRAMATIC HV, and how this advanced cleaning system can satisfy your parts cleaning requirements.



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STANDARD EQUIPMENT INCLUDED

- 304 polished stainless steel tubular framing.
- 316L stainless steel tanks & seamless tabletop
- Stainless filter housings & filter pump that operate continuously.
- Stainless steel transfer pumps and fluid control valves.
- Intermittent agitation feature to enhance cleaning, adjustable for stroke length, stroke speed, agitation, and dwell times.
- Automatic Displacement Detection: Fills the tank with the perfect amount of fluid regardless of the size of the parts.
- Automatic Rinse Water Quality Maintenance: Ensures that rinse water will not leave spots on parts when deionized water is use.
- Spray rinsing system ensures parts exit system with as high a quality as possible.
- 2-position automated gravity load conveyors and 2-position unload conveyor.
- Light tower to indicate system operating conditions from a distance.
- Holding tank overflow detection system.
- 5 recipes of operation, more can be added if needed.
- Full manual control of all components.
- High-resolution color touchscreen HMI with remote access, alarms, and equipment diagnostics.
- Choice of single-frequency or patented CROSSFIRE Multiple Frequency Ultrasonics.
- Ultrasonic power intensity controls.
- High-volume high-efficiency drying system with digital controller and SSR for high temperature control accuracy.
- High-speed immersion heating systems with digital control.
- Positive-displacement waste drain pump.
- Closed-cell fluoride/chloride-free insulation.
- NEMA4X control enclosures.
- 316L easy-access external latching panels.
- Internal components easily accessed from the front of the system.
- Industrial-grade controls, no membrane switches.
- Stainless steel hinged or removable covers.



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- Light curtain to stop moving components when operators approach too closely
- Compressed air wand to blow liquids out of complicated part designs.

STANDARD MODELS

1200 series: 10" x 12" x 10" tall basket size

2000 series: 12" x 20" x 14" tall basket size

2400 series: 18" x 24" x 15" tall basket size

Any size can be custom-manufactured at no additional cost.

AVAILABLE OPTIONS

- Process Area Enclosures with or without HEPA filtration & Exhaust Systems
- Automatic Liquid Level Maintenance & Filling Systems
- Detergent Injection
- Automatic Ultrasonic Frequency Selection (with CROSSFIRE ultrasonic system only)
- High-head Pump Drain Systems
- Rinse Overflow Capture Tanks & Automatic Drain Systems (upgrade to the pump drain).
- Water Purification & Deionization Systems for zero residue cleaning results
- Surface Skimming to prevent re-deposition of contaminants onto parts when removed.
- Zenith's exclusive Dual-draw Filtration Systems
- Anti-erosion Ultrasonic Coatings to extend transducer life
- Side-mounted Ultrasonic Output
- Casters for easy relocation
- Ball-screw automation actuators for ultra-smooth basket transfers & movement
- HEPA-filtered Drying Tanks
- Air-knife Blow-off Systems for Drying Tanks
- Rust preventative injection systems
- Closed-loop Deionization Systems
- Oil skimming systems