



# Clean

PRODUCT CATALOG



## WELCOME TO AQUEOUS TECHNOLOGIES!

Our company specializes in the manufacturing of cleaning and cleanliness testing systems for the electronics assembly industry. Aqueous Technologies' equipment utilizes our planet's purest substance for the removal of harmful residues. It is our mission to continue developing environmentally mindful equipment which assists manufacturers with increasing product reliability.

Our product line has been developed to address manufacturing concerns such as flux polymerization associated with Pb free alloys and spray impingement concerns from increasingly difficult to clean low stand-off component spaces. Awareness of our environmental impact has necessitated a place in our equipment designs for effluent management and completely zero discharge configurations. Aqueous Technologies will continue adapting our equipment to address trends in modern manufacturing best practices and in that effort our team will remain open to new learning opportunities.

Our team will continue to travel the world participating and leading educational seminars which support our industry partners in the development of safe and dependable products. If our equipment is determined to be the best fit for an application requirement, we will strive to help based on our knowledge and experiences.

Aqueous Technologies deeply values our professional partnerships and is grateful for the confidence that is given to us from our customers, sales representative organizations and distribution partners. We will remain diligent in our efforts to provide win-win partnerships and endeavor to express our corporate virtues to our sales force around the world.

Our company has grown over the past twenty years. That growth has been cultivated through interactions with our customers, advisors, employees, and colleagues. We welcome any ideas and feedback and are grateful for the opportunity to make a difference within this industry.



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## BATCH FORMAT DEFLUXING SYSTEMS



Our de-fluxing systems are available in a variety of discharge and throughput configurations and provide wash, rinse, cleanliness monitoring, drying and SPC processes. Trident is capable of removing residues, including all lead and lead-free residues from low stand-off component spaces. These systems can be configured to match specific production needs.

### CLEANING CYCLE

Removing residues from an assembly is a three step process: wash, rinse and dry. During the Wash Cycle residue is solubilized/placed into solution. Trident's stainless steel plumbing is compatible with a variety of chemicals and the system is capable of storing, mixing, heating, spraying and re-using a chosen chemical during the wash cycle. The rinse cycle is used to remove wash solution from the assemblies and replace that solution with high quality de-ionized water. Trident's spray system reduces fluid droplet sizes and distributes a spray into tight impingement areas. Trident's drying system was designed to remove residual water from an assembly. During this portion of the cycle, filtered convection and radiant heating systems are utilized to remove moisture from the surface of an assembly and in between board layers.

### SPRAY SYSTEM

Trident is equipped with an asymmetrical fan-jet spray system. Twin stainless steel counter rotating spray bars featuring twenty stainless steel fan-jet nozzles project precision-diffused wash solution and rinse water onto an oscillating board rack. This spray system was implemented to deliver controlled fluid energy underneath fine pitch components.

### STATISTICAL PROCESS CONTROL

Trident features a comprehensive Statistical Process Control (SPC) system. Alpha/Numeric recipe names, process times and temperatures, set and actual rinse resistivity levels and other valuable data are stored automatically. Built in assembly barcode scanning allows all of the SPC data to be tied to a specific assembly serial/lot number. Advanced search features allow the SPC data to be viewed on screen, sent to a wireless printer, exported via USB and viewed via network protocols.

### CLEANLINESS MONITORING

All Trident models are equipped with a built-in cleanliness monitoring feature. The systems will continue to rinse assemblies until a desired resistivity level is achieved. This process monitoring tool will indicate and record when residual wash solution has been removed from the cleaning chamber and can be used to assist with Resistivity of Solvent Extract (ROSE) testing.

### CONTROL SYSTEM

Trident is controlled by a Windows PC computer equipped with a touchscreen interface. Process data including estimated completion time, cleanliness monitoring values, and operating temperatures are displayed via this interface. The software includes multi-layered password protection and prevents unauthorized program changes. Programmable maintenance reminders, remote viewing, unlimited recipes and troubleshooting features are all included.



### THROUGHPUT CONFIGURATIONS

Trident is available in four throughput configurations. Single, double, triple and quadruple process chambers are available to correspond with door open time and throughput requirements. The Trident High Yield de-fluxing series (DUO, TRIO, QUAD) can provide a cost effective solution for high volume de-fluxing applications while maintaining the process control popularized by Trident systems.

## DISCHARGE OPTIONS

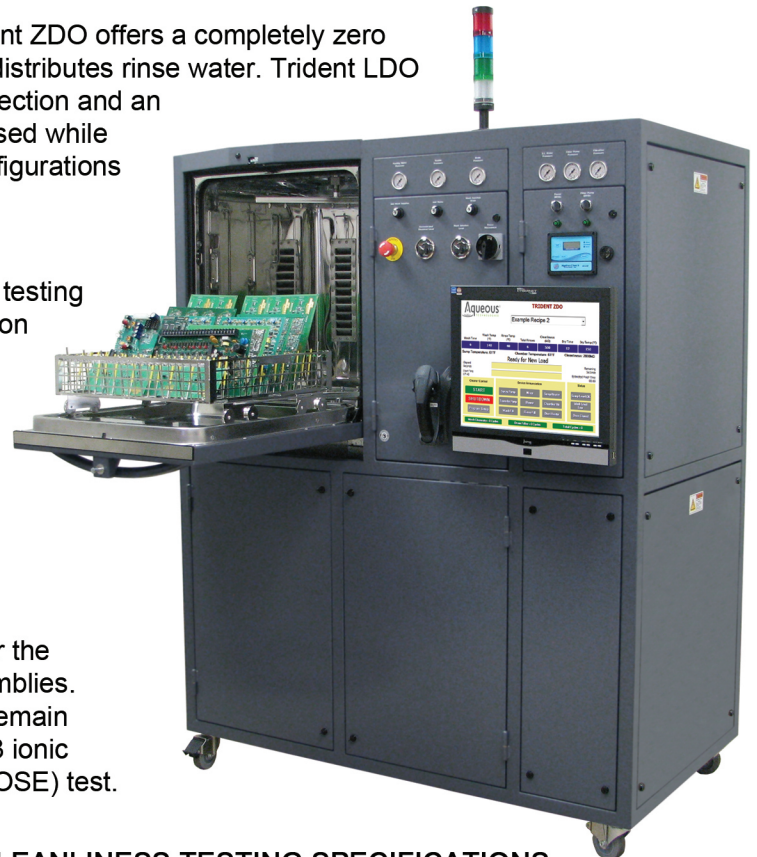
Trident is available in three discharge configurations. The Trident ZDO offers a completely zero discharge solution. This system captures, re-deionizes and re-distributes rinse water. Trident LDO and Trident ECO models include a closed-loop wash solution section and an open loop rinse section. In these systems, wash solution is reused while fresh DI rinse water is sprayed and drained. Full discharge configurations are available upon request.

## CONTRACT CLEANING SERVICES

Aqueous Technologies offers cleaning and ionic contamination testing services from our Southern California cleaning and contamination center. Our center contains versatile cleaning and testing equipment, which is capable of removing all forms of contamination including flux residues. Our technicians can provide detailed cleanliness reports which adhere to MIL/IPC J-STD-001 specifications.

## CLEANLINESS TESTERS

Ionic contamination testers were designed and implemented for the purpose of determining and monitoring the cleanliness of assemblies. These systems are utilized to ensure that cleaning processes remain within tolerance of IPC and MIL specifications. The Zero Ion G3 ionic contamination tester performs a resistivity of solvent extract (ROSE) test.



## CLEANLINESS TESTING SPECIFICATIONS

The Zero Ion G3 ionic contamination tester meets industrial cleanliness specifications including MIL-STD-2000A, MIL-P-28809 and IPC-001 TM-650.

## PROCESS CONTROL

The Zero Ion G3 is powered by a Windows PC featuring a LCD screen provides real-time process information. Intuitive tabbed display screens conveniently organize both stored and real-time process data. Built-in SPC data recording captures all relevant testing data. An integrated SPC database lookup allows users to search for desired data sets. Cleanliness results may be stored for later viewing or may be printed onto any Windows compatible printer. Additionally, the Zero Ion G3 may be networked for remote viewing of all SPC data. An optional barcode scanner provides one-touch entry of a board's serial number or other process data. The PC-based control system automatically calculates NaCl/square equivalence (per military and IPC specifications). The unit operates in an automatic or manual mode, and is equipped with virtually limitless test recipe capabilities.

### DYNAMIC MEASUREMENT TECHNOLOGY

Modern cleanliness monitoring frequently requires the testing of assemblies reflowed with no-clean solder paste. The Zero Ion G3 tester utilizes a dynamic measurement technology, for detecting (weak) ion activators commonly found in no-clean fluxes. With dynamic measurement technology, the contaminated test solution is monitored and then filtered to supply de-ionized test solution back to the test chamber, resulting in greater solubility/sensitivity.

### SUBMERGED SPRAYS

The submerged sprays provide agitation of the test solution while eliminating possible test inaccuracies caused by carbon dioxide adsorption. The combination of test-board submersion and immersion spraying creates an environment whereby soluble contamination is extracted and measured.

## ULTRASONIC STENCIL CLEANING SYSTEMS

Ultrasonic technology utilizes precisely controlled sound waves to remove non-reflowed solder paste and uncured adhesives from stencils, screens and misprints. Ultrasonic energy is gentle enough not to damage delicate parts and is highly effective in the removal of dried pastes on fine-pitch stencils.

### FEATURES

Aqueous Technologies' semi-automatic ultrasonic stencil cleaning systems are all designed to accommodate stencils, screens or misprinted assemblies up to 29" x 29" (736mm x 736mm). All models are equipped with stainless steel wash and rinse tanks, a stainless steel deck, programmable wash cycle timers, wash and rinse solution filtration systems, powered drain/filtration pumps and rinse and dry wands. These systems utilize multiple side-mounted 40 kHz transducers, which target effective cleaning power onto the stencil/misprint. Transducers include a ten year limited warranty against debonding. There are three models of StencilWashers to choose from:

#### STENCILWASHER LDO

Removing all non-reflowed solder-pastes (including lead-free) and uncured adhesives and is equipped with a wash-solution filtration and recirculation system. Rinse water is filtered and discharged to drain.

#### STENCILWASHER ECO

Remove all solder paste types (including lead-free) and provides wash, rinse and dry functions. StencilWasher ECO is equipped with a wash cycle timer, hand-held rinse wand and airknife.

#### STENCILWASHER ZDO

Removing all non-reflowed solder-pastes (including lead-free) and uncured adhesives and is equipped with a wash-solution filtration and rinse recirculation system. Rinse water is filtered, re-deionized and reused via the built-in closed-loop rinse water recycler.



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