TECHNICAL INFORMATION

AQUBE® MV9 QUAD

Fully automatic large-scale fine cleaning system for four screens/stencils

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AQUBE® MV9 QUAD

Fully automatic large-scale fine cleaning system for four screens/stencils in one cleaning cycle

Cleans screens, stencils and PumpPrints from SMD paste, SMD adhesive, soldering support substances, oil & dust

Capacity: 4 screens/stencils/carriers up to 800 x 940 mm (31,5“ x 37“)

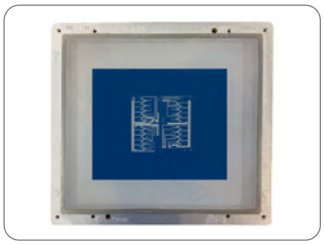
Part number: 0900AQ9MV-2

ENERSAVE WATERSAVE EASOTECH SAFEGAR

Certifications:
This system in its basic version was certified for its energy and water-saving processing, for easy operability and for the standard integration of comprehensive safety features.

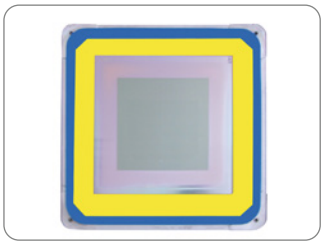
- Two-tank system with two separate circuits
- Average process time: 28 min/cycle = approx. 7 min per stencil
- Intelligent network connectivity for implementation in industry 4.0 smart factories
- Fully automatic 4-step process: cleaning, MediumWipe®, rinsing, CWA® supercharger compression drying
- Vertical PTFE-mounted rotor system with eight ASYNCHRO® spray rotors for thorough wetting (no blind spots)
- Water free operation possible with a suitable cleaning/rinsing detergent
- ClosedLoop reprocessing of cleaning and rinsing fluids as standard feature
- Processes and service intervals PLC controlled with event issuing and software control via touch screen
- Safe installation close to the production line/screen printer possible; no special protection required
- Maximum performance on a comparably small footprint, large access points for quick and easy maintenance

Key applications


Screens


Stencils


PumpPrints


M-Teck stencils

The AQUBE® MV9 QUAD is a fully automatic large-scale system for the reliable fine cleaning of four screens, stencils or PumpPrints in one wash cycle. Ideal for large-scale production facilities with several stencil printers. It removes contaminants such as SMD paste, SMD adhesive, conductive materials, flux, oil, grease or dust quickly and thoroughly.

This system can supply up to four printers with freshly cleaned and dry stencils or screens every quarter of an hour. The configuration with two tanks and two independent circuits as well as ClosedLoop water treatment as a standard ensures short throughput times and makes this machine the perfect economic choice for thorough volume cleaning of stencils and screens.

The compact, easy-to-operate and easy-to-maintain system is Smart Factory ready.

The cleaning system can be operated with all common electronics cleaning supplies (detergents/chemistry, etc.) which are approved by the manufacturer.

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Application overview

Optional suitable	Most suitable	Optional suitable	Not suitable	Not suitable
PCBAs, Hybrids	Stencils	Solder frames	ESD Boxes	Condensation traps
Power electronics	Screens	Solder carriers	Containers	Filters
Misprints	Misprints (bare boards)	Solder masks	Magazines	Steel sheets

Optional suitable applications can also be optimally realized with the appropriate options.

Cleaning (key process 1): The process chambers can be operated in parallel or sequential mode. From the cleaning tank A (TA) the cleaner liquid is sucked by a magnetically coupled pump unit and routed with a controllable volume flow through a separate circuit into the ASYNCHRO® spray rotor nozzles. Their geometry ensures a comprehensive and thorough cleaning, even in inaccessible and critical areas.

MediumWipe® (intermediate process 2): The remaining cleaner is blown off from the clean products and blown out of the cleaner circuit and recirculated into the cleaning tank (TA) before the valve switchover closes.

Rinsing with tap water (key process 3): From the rinsing tank B/C (TB/C) the water is pumped through the separate second circuit into the spray rotors. For information: Tap water has (compared to DI-/DM-water) the advantage of lower surface tension and thus flushes also critical points as small appertures more efficient.

MediumWipe® (intermediate process 2): The remaining water is blown off from the products and blown out of the cleaner circuit and recirculated into the rinsing tank (TB/C).

Final rinsing with DI-/DM-water (optional process): The DI-/DM-water is produced from tap water in an integrated MB-cartridge and flushes conducting ions of the previous processes. This process is repeated automatically until the remaining amount of ions falls below the programmed value.

MediumWipe® (optional intermediate process): Blowing off and recirculating the remaining DI-/DM-water into the rinsing tank (TB/C).

Drying (key process 4): The purified products are dried with the patented CWA®- (Compressed Warm Air) technology. The built-in special compressor compresses the ambient air. At the same time it collects the kinetic energy (frictional heat) of the paddle wheel in the unit, then presses the heated and compressed air into the rotor nozzles which were already used for cleaning and rinsing. There it blows off (pressure) and evaporates (heat) the residual moisture. This method is energetically and constructively highly efficient, as it uses the "waste heat" of the compressor rotation and the compressed air as driving power for the rotors. In addition, a system equipped with CWA®-technology requires no additional hardware and no external compressed air connection for the MediumWipe® process.

Maintenance: The system has recessed removable panels for quick maintenance. In the maintenance area among others are the pump-out set, the re-dosage unit with space for a 25-liter detergent container and an optional re-dosing unit for a 5 l additive container as well as the MB cartridge for DI-/DM-water processing. Tank levels as well as pressure values and maintenance cycles are monitored by the PLC and displayed on the touch screen.

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Main standard features

□ PowerSpray® technology bundle: magnetically coupled XXL-Power (tank A) and X-Power (tank B/C) pump units, eightfold ASYNCHRO® volume-spray rotor system with low maintenance PTFE mounted stainless steel rotors with special nozzles, "Option100" software program (100 freely selectable programs)
□ PolyPower® configuration with Power pump unit
□ EATON Programmable Logic Controller (PLC) with module extension for special programming and technology extensions
□ Smart Factory ready Premium: for remote control (see options) and traceability with retractable touch monitor and integrated industry PC (see options)
□ High resolution 10" (1,024 x 600 px) display with multi-touch and intuitive process view
□ Fourfold alternating LED status light bar integrated in the system frame
□ Fourfold slot insert
□ Electrically driven large double-wall airlock door: transparent or process-related with internal pane made of stainless steel
□ Function package Fine Filter System Tank A (incl. XXL-Power pump unit for the cleaning circuit, fine filter system and sediment filter for the cleaning tank A (TA)
□ Function package Fine Filter system Tank B/C (incl. upgrade to XL-Power pump unit for the rinsing circuit and fine filter system for rinsing tank B/C (TB/C)
□ MediumWipe® unit for further optimization of detergent and rinsing fluid use
□ ClosedLoop reprocessing of cleaning and rinsing fluids
□ Automatic re-dosage unit for 25 l detergent container
□ CWA®-supercharger compression drying
□ Ø 160 mm 2Step chamber exhaust system with extraction control
□ Spare space for DI-/DM-water processing cartridge
□ Safety features: safety interlock on the process chamber door, overflow alarm for all tank sections, overheating protection for all heating and drying elements, end switches for all motor-driven valves and drives, personnel protection insulation
□ Removable side doors for quick and easy maintenance
□ Doors, cladding and hinges enclosed without edges, depot for traceability scanner and monitor in the side wall recessed
□ Process sections made of electrolysis resistant elements

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Main options

□ Function package PCBA Cleaning (incl. option automatic water exchange for rinsing circuit/tank B/C (TB/C) with lifting unit, option heater cleaning tank (TA), function package DI-water system (incl. DI-/ DM-water measuring unit (residual ion contamination measurement), mixing-blending unit, ion exchanger cartridge, cartridge air vent)
□ Function package DI Water System "Combi" (incl. function package DI water system (incl. DI-/DM-water measuring unit, (residual ion contamination measurement), DI-bypass processing unit, ion exchanger cartridge, cartridge deaeration) and option automatic water change for the rinsing tank (TB/C)
□ Function package Online Cleaner Regulation (incl. brix monitor for refraction measurement, automatic re-dosing of the cleaner, flow meter, dosing ball valve)
□ Function package Noise Insulation (incl. option housing insulation and option safety/storage tray with integrated underfloor insulation mat)
□ Function package Traceability "Basic" (incl. SPC data scanner, data backup in CSV file, backup via SD card (via slot in the PLC)
□ Function package Traceability "Comfort" (incl. PLC data scanner and retractable touch monitor and industrial PC with Intel processor)
□ Automatic re-dosage unit for 5 l additive container
□ Decalcification unit for reducing the lime content in the rinsing water (tap water) circuit/rinsing tank B/C (TB/C)
□ Heater for cleaning tank A (TA)
□ Exchange for rinse water and pump out unit
□ Remote control (browser-based control/monitoring via mobile device or PC)
□ RMA Remote Maintenance Assistance (factory-controlled maintenance support)
□ Automatic water exchange with pumping system for the rinsing circuit
□ Paint of choice (frame rack, coverings and hood)
□ XL-Power pump unit for rinsing circuit/tank B/C (TB/C)

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Technical data

Technology base	**kolb** PowerSpray®
Capacity per cycle	4 screens/stencils/carriers up to 800 x 940 (31.5“ x 37")
Process chamber dimensions	W 970 ▪ D 955 ▪ H 900 mm (W 38.18" ▪ D 37.59" ▪ H 35.43")
Usable chamber dimensions	4 slots: D 940 ▪ H 800 mm (D 37 ▪ H 31.5")
Volume tank A (cleaning)	125 l
Volume tank B/C (rinsing)	125 l
Electrical supply	400 V AC, 32 A, CEE plug/3 Ph/50 or 60 Hz
Power consumption	approx. 8.9 kW
Control system	PLC (EATON)
Max. cleaning temperature*	50 °C (122 °F) - *max. temperature load for the tank circuits
Filter system	1. Full flow coarse filter < 2mm (0.08"), 2. 20“ fine filter (1 - 100µm - process dependent)
Supply connection 1 (tap water)	> 18 °C,1" hose with 30µm water filter (on-site inlet water quality, pressure 3 - 4 bar, < 250 - 350 µS conductivity (< 10° dH) or descaling unit option. Do not use a softening/soft water system in the inlet)
Supply connection 2 (DI-/DM-water)	> 18 °C, 1" hose with 30µm water filter (DI-net provided by customer or bridging to tap water)
Supply connection 3 (compressed air)	6 - 8 bar (87 - 116 psi) - 100 l/min for option MediumWipe®, connection for 8 mm (0.31") hose
Rinse water drain connection	(integrated pump-out system) connection for 1/2" hose
Exhaust connection	Ø 160 mm (6.3"), exhaust capacity > 1,100 m^3/h (38,847 ft^3/h)
Operating condition room temperature	20 - 35 °C (68 - 95 °F)
Footprint	W 1.700, D 1.850 mm (W 66.9", D 72.8")
Operating noise/Empty weight	74 dB(A)/ 950 kg (2,095 lbs)