



## AQUBE® MV9 QUAD

Fully automatic XXL fourfold screen / stencil cleaning system with eightfold ASYNCHRO® stainless steel rotor configuration

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 x 40 mm (31.5" x 37" x 1.5")

Part number: 0900AQ9MV22

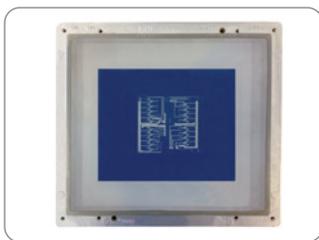


### Certifications:

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
- \* Intelligent network connectivity for implementation in industry 4.0 smart factories
- \* Fully automatic 4step process: cleaning, MediumWipe®, rinsing, CWA® supercharger compression drying
- \* Vertical PTFE mounted rotor system with eight asynchronous spray rotors for thorough wetting (no blind spots)
- \* Short cycle times (approx. 4 min relative cleaning time per stencil / normal contamination) due to placing the cleaning goods close to the spray rotors
- \* Water free operation possible with a suitable cleaning / rinsing detergent
- \* Processes and service intervals PLC controlled, event issuing and software control via touch screen
- \* Safe installation close to the production line / screen printer possible; no special protection required
- \* EDGELESS Design and VARAccess® service access: maximum capacity, easy maintenance on a very small footprint

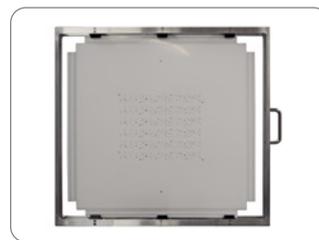
### Key applications



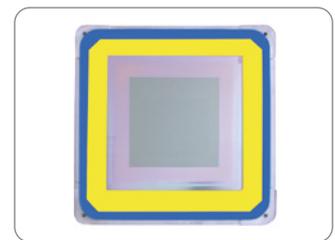
Screens



Stencils



PumpPrints



M-Teck stencils

The new kolb AQUBE® series offer next-generation cleaning systems - even more efficient, even more compact, easy to handle and maintain, pre-equipped for extended water management and cyber-physically ready for the smart factory (SF ready).

AQUBE® MV9 QUAD is a completely German engineered and manufactured fully automatic XXL system for process safe cleaning of four screens, stencils or PumpPrints in one cleaning cycle. This system with its super-large process chamber can supply up to four printers every quarter hour with freshly cleaned and dried stencils or screens and is therefore ideally suited for large-scale productions with several stencil printers.

The two-tank configuration with two independent circuits and ClosedLoop water reprocessing ensures short cycle times and makes this system the perfect economic choice for the bulk cleaning of stencils..

**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

|  |  |  |                                      |   |
|--|--|--|--------------------------------------|---|
|  |  |  |                                      |   |
| <b>Optional suitable</b>                                   | <b>Most suitable</b>                           | <b>Optional suitable</b>                         | <b>Not suitable</b>                  | <b>Not suitable</b>                           |
| PCBAs, Hybrids<br>Power electronics<br>Misprints (mounted) | Stencils<br>Screens<br>Misprints (bare boards) | Solder frames<br>Solder carriers<br>Solder masks | ESD Boxes<br>Containers<br>Magazines | Condensation traps<br>Filters<br>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. Tap water has (compared to DI / DM water) the advantage of lower surface tension and thus flushes also critical points as small apertures 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 a VARlccess® maintenance access system with recessed, variable doors and removable panels. 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 rotorsystem with low maintenance PTFE mounted stainless steel rotors with PUSHFORCE® nozzles, "Option100" software program (100 freely selectable programs)
- EATON Programmable Logic Controller (PLC) with module extension for special programming and technology extensions
- Smart Factory ready: DNAccess® (standard) for remote control (see options) and traceability with retractable touch monitor and integrated industrial PC (see options)
- High resolution 10" (1,024 x 600 px) display with capacitive 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
- VARlccess® service access with right and left-hinged side doors as well as unhinging possibility for side doors, front panel, and rear supply rail
- EDGELESS housing design. Doors, cover panels and hinges without edges, depot for traceability scanner and monitor in the right side panel
- Process sections made of electrolysis resistant elements



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### Main options

- Function package PCBA Cleaning (incl. option automatic water change 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 WPSD IU Wastewater Treatment Unit (incl. WPSD IU9 SYMBIO® module, pH-lowering unit with pH measuring probe, pH re-dosing, control valves, heavy metal adsorber cartridge, cartridge deaerator)
- 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 change 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)

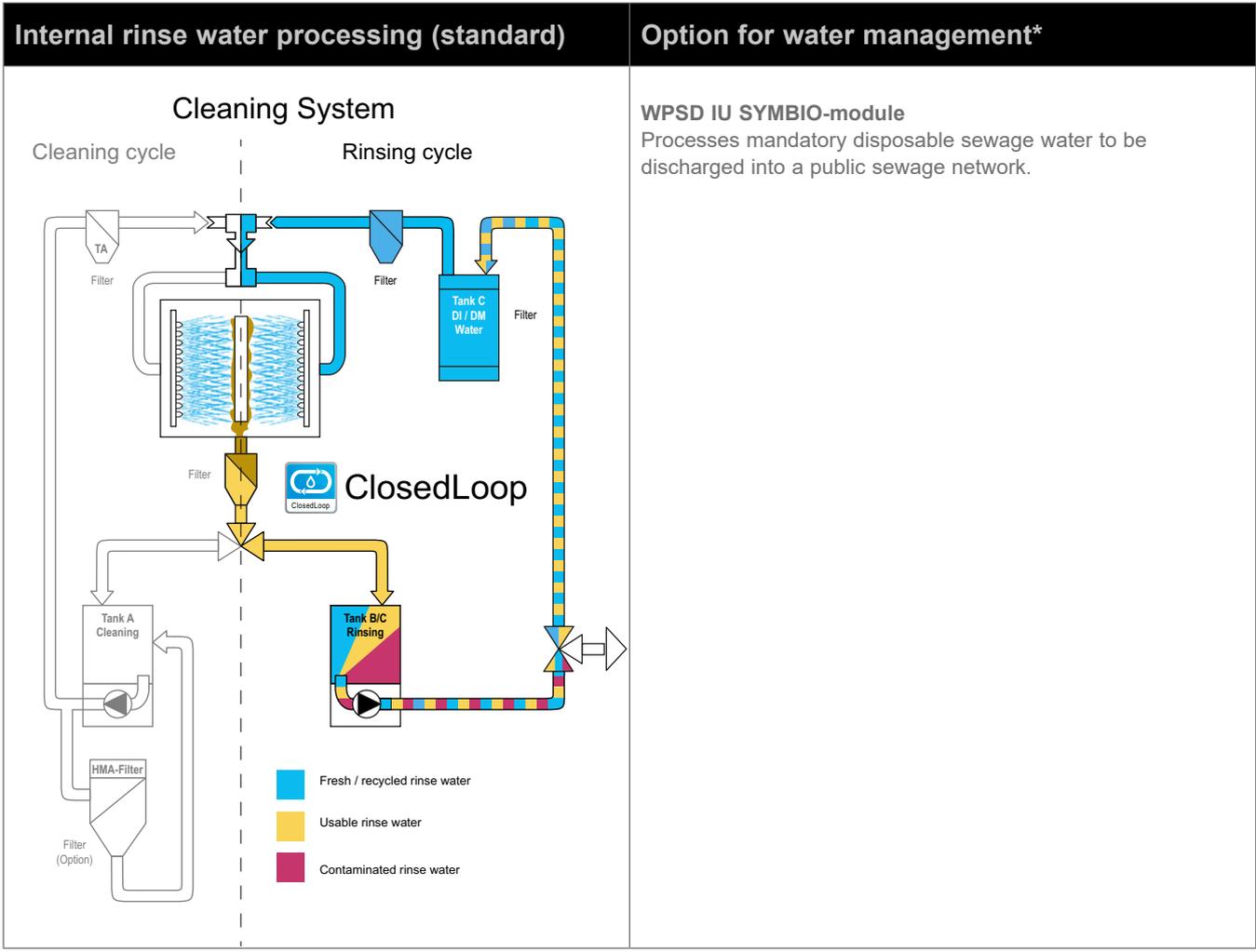


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\* Operating companies of industrial cleaning systems are responsible for proper disposal of wastewater / rinse water and (wasted) cleaning detergent. Further information on wastewater management at [www.kolb-ct.com/systems/water-management/](http://www.kolb-ct.com/systems/water-management/), consulting requests to [info@kolb-ct.com](mailto:info@kolb-ct.com)



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## Technical data

|  |   |
|--|---|
| Technology base                                | <b>kolb PowerSpray®</b>   |
| Capacity per cycle                             | 4 screens / stencils / carriers up to 800 x 940 x 40 mm (31.5" x 37" x 1.5")  |
| Process chamber dimensions                     | W 970 ▪ D 955 ▪ H 900 mm (W 38.18" ▪ D 37.59" ▪ H 35.43")   |
| Usable chamber dimensions                      | 4 slots: W 77 - 110 ▪ D 900 ▪ H 800 mm (W 3" x D 37.59 x 31.5")   |
| Volume tank A (cleaning), tank B / C (rinsing) | 125 l   |
| Power supply                                   | 400 V AC, 32 A, CEE plug / 3 Ph / 50 or 60 Hz   |
| Power consumption                              | approx. 7.5 kW  |
| Control system                                 | PLC (EATON)   |
| Temperature load                               | up to 80 °C (176 °F)  |
| Filter system                                  | up to four stages - 1. Full flow coarse filter < 2mm (0.08"), 2. Sediment filter inside the tank, 3. 20" fine filter (1 - 100µm - process dependent), 4. HMA filter   |
| Supply connection 1 (tap water)                | > 18 °C, 1/2" 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 (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 m³ / h (38,847 ft³ / h)   |
| Footprint                                      | 1.700 x 1.850 mm (66.9" x 72.8")  |
| Operating condition room temperature           | 20 - 35 °C (68 - 95 °F)   |
| Operating noise                                | 74 dB (A), 70 dB (A) with function package Noise Insulation   |
| Empty weight                                   | 920 kg (2,028 lbs)  |

