



## AQUBE® XV9

Fully automatic high end 3-tank, 3-circuit PowerSpray® XXL ultra-fine cleaning system for DCB and PCB cleaning

Cleans DCBs, PCBs, hybrids and misprints from flux residues, resin, copper, oxide and soldering support substances

Capacity: 64 DCB panels 5" x 7" or 100 eurocards

Part number: 0905AQ9XV731

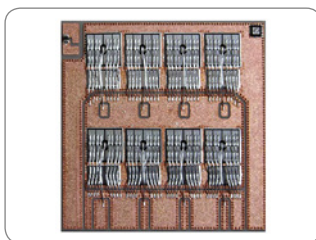


### Certifications:

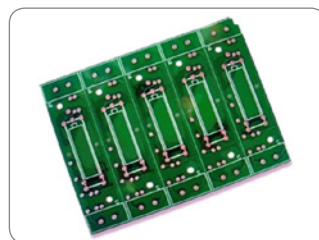
This system in its basic version was certified for its energy and water saving processing, for easy operability and for the standard integration of comprehensive safety features.

- \* Three tank system with three separate circuits
- \* Intelligent network connectivity for implementation in industry 4.0 smart factories
- \* Fully automatic 5step process: cleaning, MediumWipe®, tap water rinsing, DI-water rinsing, CWA®-supercharger compression drying
- \* Vertical PTFE mounted rotor system with eight asynchronous spray rotors for thorough wetting (no blind spots)
- \* Short cycle times due to placing the cleaning goods close to the spray rotors
- \* Heater in tank A (cleaning), tank B and tank C (rinsing) as a standard feature
- \* Automatic monitoring of ionic residues contamination and controlling of rinse water quality
- \* Process and service intervals PLC controlled, event issuing and software control via touch screen
- \* EDGELESS Design and VARAccess® service access: maximum capacity, easy maintenance on a very small footprint

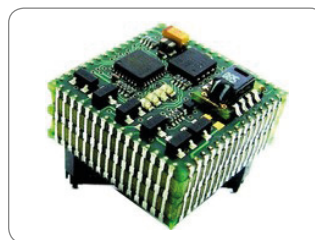
### Key applications



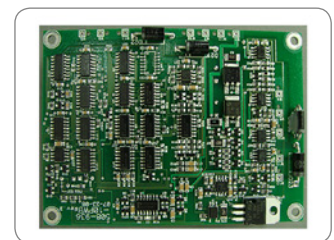
DCBs



Ceramic substrates



Hybrids (SiPs)



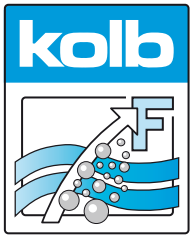
Assembled PCBs

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® XV9 is a completely German engineered and manufactured fully automatic XXL cleaning system with by far the largest process chamber of a batch system worldwide - with vertical rotor technology for highest demands in process safe ultra-fine cleaning.

The parallel working three-tank, three-circuit configuration with ClosedLoop water reprocessing ensures short cycle times as well as low running cost, leading to an uncontested low total cost of ownership value.

**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

 Most suitable	 Optional suitable	 Optional suitable	 Not suitable	 Not suitable
Assembled PCBs Hybrids Misprints	Stencils Screens, PumpPrints Misprints	Solder frames Solder carriers Solder masks	ESD Boxes Containers Magazines	Condensation traps Filters Steel sheets

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

**Cleaning** (key process 1): From the cleaning tank (A) the cleaner liquid is sucked by a magnetically coupled pump unit and routed with a controllable volume flow through a separate circuit into the PTFE mounted ASYNCHRO® spray rotors with patented PUSHFORCE® nozzles. Their geometry ensures a comprehensive and thorough cleaning, even in inaccessible and critical areas. After the washing procedure, the valve switchover of the process chamber undocks the cleaning circuit until the next process run.

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

**Rinsing with tap water** (key process 2): From the first rinsing tank (tank B), 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 low standoffs more efficient.

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

**Clear rinsing with DI / DM water** (key process 3): The DI / DM water is produced in an integrated MB-cartridge from tap water and kept in the second rinsing tank (tank C). Through the third cycle it flushes conducting ions of the preliminary processes. This process is repeated automatically until the remaining amount of ions falls below the programmed value.

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

**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 VARAccess® maintenance access system with recessed, variable doors and removable panels. In the maintenance area among others are the pump-out set, the optional re-dosage unit with space for a 25 liter detergent and 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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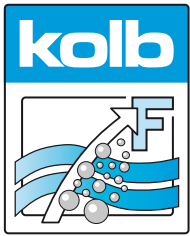
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### Main standard features

- PowerSpray® technology bundle: magnetically coupled X-power pump unit, twofold ASYNCHRO® volume-spray rotorsystem with low maintenance PTFE mounted stainless steel rotors with PUSHFORCE® nozzles, "Option101" softwareprogram (101 freely selectable programs)
- PolyPower® XL configuration with XL-Power pump unit
- 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
- Electrically driven large double-wall airlock door: transparent or process-related with internal pane made of stainless steel
- Fourfold alternating LED status light bar integrated in the system frame
- Fourfold slot insert
- Cartridge fine filter for cleaning and both rinsing circuits
- Full flow coarse filter (process chamber)
- Heater for tank A (cleaning), B and C (rinsing)
- MediumWipe® unit for further optimization of detergent and rinsing fluid use
- Automatic monitoring of ionic residues contamination and gauging of rinse water quality
- Adjustable DI / DM water mixing and blending unit
- CWA®-supercharger compression drying
- ClosedLoop reprocessing of cleaning and rinsing fluids
- HMA software and pre-equipping for HMA hardware (Heavy Metal Adsorber) for the cleaning circuit (see options)
- Spare space for MB- / DI-cartridge for deionized (DI) and demineralized (DM) water
- Exchange for rinse water and pump out unit
- 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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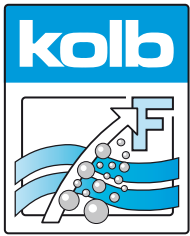
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### Main options

- |   |
|---|
| <input type="checkbox"/> Automatic re-dosage unit for 25 l detergent and 5 l additive container                                       |
| <input type="checkbox"/> Carriers for slot inserts  |
| <input type="checkbox"/> Descaling unit to reduce the lime content in the rinsing water   |
| <input type="checkbox"/> Drip & storage reservoir   |
| <input type="checkbox"/> Exhaust unit   |
| <input type="checkbox"/> HMA filter (Heavy Metal Adsorber) unit for the cleaning circuit  |
| <input type="checkbox"/> MB / DI cartridge for deionized (DI) and demineralized (DM) water  |
| <input type="checkbox"/> Optional lacquering (frame rack and coverings)   |
| <input type="checkbox"/> Permanent automatic rotor run control  |
| <input type="checkbox"/> Remote Control (remote monitoring, mailing, etc.)  |
| <input type="checkbox"/> Sediment filter (tank A)   |
| <input type="checkbox"/> Status light fivefold to display the current process state   |
| <input type="checkbox"/> Traceability unit with PLC data scanner and retractable touch monitor and industrial PC with Intel processor |



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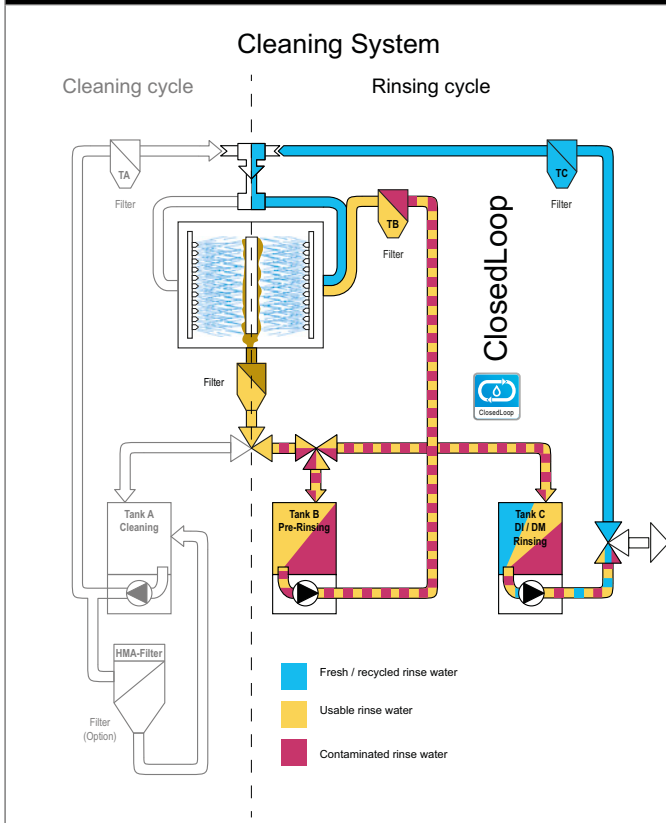
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### Internal rinse water processing (standard)

### Options\* for water management



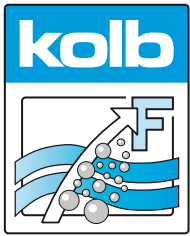
#### WPSD IU SYMBIO-module

Processes mandatory disposable sewage water to be discharged into a public sewage network.

#### WPCL IUT3 SYMBIO-module

Recycles DI / DM water for recirculation and multiple reuse in the cleaning systems clear rinsing cycle.

\* 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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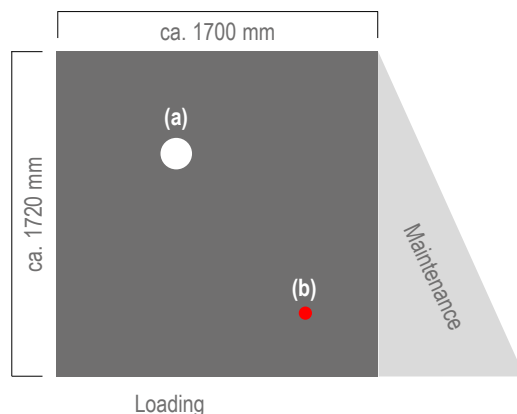
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## Technical data

Technology base	<b>kolb PowerSpray®</b>
Capacity	64 DCB panels 5" x 7" or 100 eurocards
Process chamber dimensions	W 970 • D 955 • H 900 mm
Usable chamber dimensions	4 slots: B 77 - 110 • T 900 • H 800 mm
Volume tank A (cleaning), B (rinsing)	approx. 100 l each
Volume tank C (DI-rinsing)	approx. 125 - 175 l
Power supply	400 V AC, 32 A CEE / 3PH / 50 or 60 HZ
Power consumption	approx. 12.5 kW
Control system	PLC (EATON)
Temperature load	up to 55 °C
Filter system	up to four stage - 1. Full flow coarse filter < 2 mm, 2. Sediment filter inside the tank, 3. 20" fine filter (1 - 100µm - process dependent), 4. HMA filter
Supply connection 1 (tap water)	3/8", hose connection 14 mm (prov. by customer: inlet water quality < 350 µS conductance value (< 10° dH) or option descaling unit)
Supply connection 2 (DI / DM water)	1/4", hose connection 14 mm (DI-net prov. by customer or bridging to tap water)
Supply connection 3 (compressed air)	6 - 8 bar (100 l / min) for DCB MediumWipe® process
Rinse water drain connection	3/4", hose connection 25 mm with integrated pump out system
Exhaust connection	Ø 160 mm, exhaust capacity 200 to 300m³ / h
Footprint	1.700 x 1.720 mm
Operating noise	63 dB (A)
Empty weight	920 kg

**Top view:**  
Space requirement cleaning system  
(a) = Exhaust 160 mm  
(b) = Status light



**Front view:**  
with optional status light (b)

