



PSE LX9

CLEANING TECHNOLOGY

Made in Germany

Fully automatic PowerSpray® XXL economy cleaning system for PCBs with three circuits and three tanks

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

Capacity: up to 830 (19 m²) eurocards in up to two variable drawer baskets

Part number: 0905PSE9LX31 / 0905PSE9LX41 (HT version)

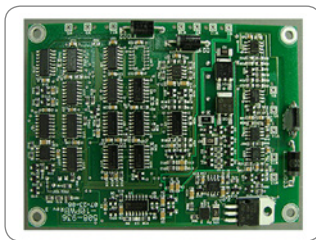


Certifications:

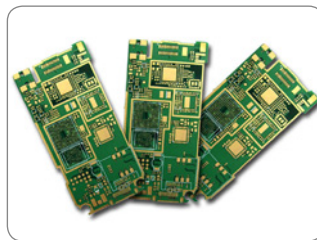
This system in its basic version was certified for its energy and water saving processing, for easy operability and for the standard integration of comprehensive safety features.

- * Three tank system with three separate circuits
- * Fully automatic 4step (optional up to 5step) process: cleaning, (MediumWipe®), rinsing (tap water), DI-water rinsing, VMH®-Turbo evaporative drying
- * 8 seconds relative cycle time for the cleaning, rinsing and drying of one eurocard
- * Horizontal PTFE mounted rotor system with up to eight asynchronous spray rotors for thorough wetting (no blind spots)
- * 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
- * Maximum capacity on a very small footprint
- * HT version for high temperature cleaning and rinsing up to 80 °C available

Key applications



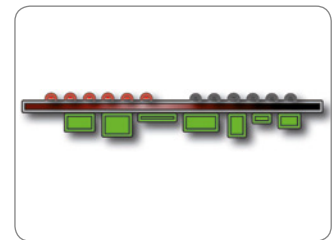
Assembled PCBs



Hybrids (HDIs)



Hybrids (SiPs)



Misprints

The **kolb** PSE economy line is a quality series of advanced cleaning systems, which focuses on all essential criteria for a qualified cleaning process and therefore stands for attractive purchase prices.

PSE LX9 is a completely German engineered and manufactured fully automatic XXL PCB fine cleaning system with by far the largest process chamber in a PCB cleaning batch system worldwide and thus with higher capacity per time than even any common inline system: (860 / 19m² eurocards in one cleaning cycle, corresponding to a relative cleaning time of 8 seconds per card).

The three-tank, three-circuit configuration ensures very short cycle times, low running costs and makes this system the perfect economic choice for the precision mass cleaning of assembled PCBs.

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 |  Optional 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® stainless steel 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.

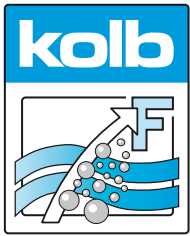
MediumWipe® (optional intermediate process): The remaining water is blown off from the products and blown out of the cleaner circuit and recirculated into the rinsing tank.

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

Drying (key process 4): The clean products are dried with the patented VMH® (Venturi Mixed Hot air) technology. A high volume flow of normal circulating air is blown into a venturi nozzle. The resulting differential pressure there (passively) sucks on a small amount of very high temperature air. The resulting air mixture provides for uniformly high drying temperature (adjustable between 70 and 90 °C) all over the process chamber. Further advantages are robustness and low cost of ownership. Energy is only needed for a fan and the heating of a very small amount of air; the rest is executed by pressure differences and air duct geometry.

Maintenance: The system has a large maintenance door on the right side. 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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Main standard features

- PowerSpray® technology bundle: magnetically coupled XXL-Power pump unit, twofold ASYNCHRO® volume-spray rotorsystem with low maintenance PTFE mounted stainless steel rotors with PUSHFORCE® nozzles, "Option101" software program (101 freely selectable programs)
- EATON Programmable Logic Controller (PLC)
- 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
- Lower VA drawer basket, ESD-safe with grounding connection for the operator
- Cartridge fine filter for cleaning and both rinsing circuits
- Full flow coarse filter (process chamber)
- Heater for tank A (cleaning)
- Automatic monitoring of ionic residues contamination and gauging of rinse water quality
- Adjustable DI / DM water mixing and blending unit
- VMH® Turbo hot air evaporative drying (control range approx. 70 - 90 °C)
- ClosedLoop reprocessing of cleaning and rinsing fluids
- 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
- Process sections made of electrolysis resistant elements



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Main options

- Automatic XL-re-dosage unit for 25 l detergent and 5 l additive container
- Automatic water change for cleaning circuit (only HT version)
- Descaling unit to reduce the lime content in the rinsing water
- Drip & storage reservoir
- Exhaust unit
- HT Version for high temperature cleaning up to 80 °C
- MB / DI cartridge for deionized (DI) and demineralized (DM) water
- MediumWipe® unit for further optimization of detergent and rinsing fluid use
- Permanent automatic rotor run control
- Speed load cart (reduces downtime for loading by more than 75%)
- Status light fivefold to display the current process state
- Upper VA drawer baskets with ASYNCHRO® PTFE mounted stainless steel TopDown-double rotors with PUSHFORCE® special nozzles



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Technical data

| | |
|---|---|
| Technology base | kolb PowerSpray® |
| Capacity | 830 (19 m ²) eurocards |
| Process chamber dimensions | W 970 • D 955 • H 900 mm |
| Usable space lower basket only | W 880 • D 890 • H 760 mm |
| Usable space utilizing four baskets | W 880 • D 890 • H 150 mm (four times) |
| Volume tank A (cleaning), B / C (rinsing) | approx. 100 - 125 l each |
| Power supply | 400 V AC, 32 A CEE / 3PH / 50 or 60 HZ |
| Power consumption | approx. 18 kW |
| Control system | PLC (EATON) |
| Temperature load | up to 55 °C (standard system), up to 80 °C (HT-version) |
| Control range drying | approx. 70 - 90 °C |
| Filter system | up to three stage - 1. Full flow coarse filter < 2 mm, 2. Sediment filter inside the tank, 3. 20" fine filter (1 - 100µm - process dependent) |
| Supply connection 1 (tap water) | 3/4", hose connection 25 mm (prov. by customer: inlet water quality < 350 µS conductance value (< 10° dH) or option descaling unit) |
| Supply connection 2 (DI / DM water) | 3/4", hose connection 25 mm (DI-net prov. by customer or bridging to tap water) |
| Supply connection 3 (compressed air) | 6 - 8 bar (100 l / min) for HT version or optional MediumWipe® process |
| Rinse water drain connection | 3/4", hose connection 25 mm with integrated pump out system |
| Exhaust connection | Ø 160 mm, exhaust capacity 800 to 1.200m ³ / h |
| Operating condition room temperature | 20 - 35 °C |
| Operating noise | 63 dB (A) |
| Footprint / Empty weight | 1.700 x 1.720 mm / 920 kg |

