

# CLEANING TECHNOLOGY

Made in Germany



Cleaning Systems for  
the Electronics Industry

# If it can be cleaned, we can clean it!

**kolb** Cleaning Technology GmbH, founded in 1988, is a pioneer and global leader in the manufacture of customized and sustainable cleaning processes for the electronics industry.



We are your one-stop shop for all process components: systems, detergents, process design, and training on the efficient and sustainable operation of our products - for all cleaning tasks in electronics production.



At the **kolb** technical center and analytical laboratory, new technologies, processes, and chemical products are constantly being tested, and current products are being further developed.

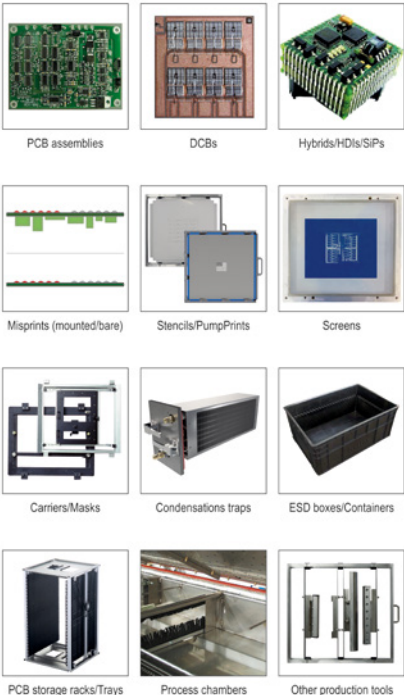


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# What must be cleaned in which production area?

| Segment                      | Cleaning Goods                                                       | Contaminations |           |                             |                         |                 |
|------------------------------|----------------------------------------------------------------------|----------------|-----------|-----------------------------|-------------------------|-----------------|
|                              |                                                                      | SMD Adhesive   | SMD Paste | Flux Colophony condensation | Flux Colophony residues | Dust/Oil/Grease |
| Electronics Product Cleaning | PCB assemblies                                                       |                |           |                             | ●                       | ●               |
|                              | DCBs                                                                 |                |           |                             | ●                       | ●               |
|                              | Hybrids/HDIs/SiPs                                                    |                |           |                             | ●                       | ●               |
|                              | Misprints (single side mounted board)                                | ●              | ●         |                             | ●                       |                 |
| Electronics Tool Cleaning    | Stencils/Screens/PumpPrints                                          | ●              | ●         |                             |                         |                 |
|                              | Misprints (bare board)                                               | ●              | ●         |                             |                         |                 |
|                              | Carriers/Masks                                                       |                |           |                             | ●                       | ●               |
|                              | Condensation traps (Filters, radiators from connection reflow ovens) |                |           | ●                           | ●                       | ●               |
|                              | ESD boxes/Containers                                                 |                |           |                             | ●                       | ●               |
|                              | PCB storage racks/Trays                                              |                |           |                             | ●                       | ●               |
|                              | Machine parts (Flux units, sheet metal, pumps, etc.)                 |                |           | ●                           | ●                       | ●               |
|                              | Process chambers - manual (Solder systems)                           |                |           | ●                           |                         | ●               |
|                              | Other production tools - manual                                      | ●              | ●         | ●                           | ●                       | ●               |



Cleaning in the electronics industry describes a process that becomes more complex the more sophisticated the goods to be cleaned are. But even in maintenance cleaning, i.e., the cleaning of production equipment from manufacturing, such as soldering frames, flux filters, or squeegees and spatulas, the different chemical compositions of adhesives or pastes and the characteristics of the production environment (system characteristics, temperatures) can significantly influence the cleaning results for good or for bad.

When it comes to fine and ultra-fine cleaning, i.e., the careful cleaning of highly sensitive and complex PCB assemblies, substrates, or hybrids, a reliably reproducible, perfect cleaning process is a combination of not only obvious but often also hidden details.

It is not only the cleaning system, the detergent and the product to be cleaned that are decisive for a perfect result. Even a minimal change in the metal alloy of a screen stencil, the slightest divergence in the ingredients of a paste, or a change in the lime content of the rinse water can often have a significant impact on the success or failure of the cleaning result. These are just a few examples of details that must always be taken into account.

**kolb** has been dealing with these complex requirements as a full-service provider since 1988. Our cleaning systems and detergents are the result of continuous analysis of complex requirement scenarios, enabling us to deliver the best system configuration, the optimal chemistry and the most efficient process program for every process.

# AQUBE® XH series - The Elite

For the highest demands, fast and economical

The AQUBE® XH series systems clean PCBAs, DCBs, power electronics, HDIs, and lead frames from flux residues, resin, copper oxide, and soldering aids. All systems operate in a fully automatic 4- to 5-step process and are pre-equipped for integrable, efficient water recycling and/or disposal modules (see pages 30, 31).

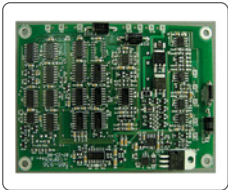
The key features of the AQUBE® XH series

- Fully automatic 4- to 5-step process (cleaning, (MediumWipe®), rinsing with tap water, rinsing with DI water, VMH® TurboDigital evaporation drying)
- Smart Factory ready
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids
- AQUBE® XH7 also available as a TZD system (more on TZD technology on pages 28, 29)

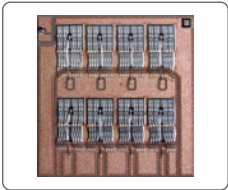


|                                           | AQUBE® XH6                                       |
|-------------------------------------------|--------------------------------------------------|
| Capacity/Loading                          | 264 eurocards (4.2 m²)/<br>three washing baskets |
| Processing time/<br>relative per eurocard | approx. 60 min/14 s                              |
| Tanks/circuits                            | Three-tank system with<br>three circuits         |
| Process chamber<br>(in mm)                | W 540 • D 590 • H 710                            |

| AQUBE® XH7                                       | AQUBE® XH9                                     |
|--------------------------------------------------|------------------------------------------------|
| 540 eurocards (8,6 m²)/<br>three washing baskets | 830 eurocards (19 m²)/<br>four washing baskets |
| approx. 60 min/7 s                               | approx. 70 min/5 s                             |
| Three-tank system with<br>three circuits         | Three-tank system with<br>three circuits       |
| W 700 • D 720 • H 710                            | W 970 • D 955 • H 900                          |



PCBAs



DCBs



AQUBE® XH6



AQUBE® XH9



Slideln unit



SpeedLoad cart

# AQUBE® XV SuperTask series - The Specialists

## Special systems for special tasks

The AQUBE® XV SuperTask series uses vertically arranged spray rotors to remove challenging contaminants at optimum pressure and ensures shadow-free cleaning.

These high-end special-purpose systems with short process times are primarily designed for the process-optimized precision cleaning of PCBAs and hybrids with complex architectures.

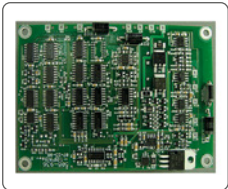
## The key features of the AQUBE® XV series

- Fully automatic 4- to 5-step process (cleaning, (MediumWipe®), rinsing with tap water, rinsing with DI water, VMH® TurboDigital evaporation drying)
- Smart Factory ready
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids
- AQUBE® XV7 also available as a TZD system (more on TZD technology on pages 28, 29)

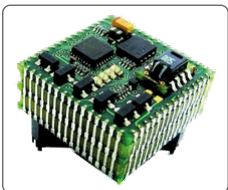


|                                              | AQUBE® XV7 ST                                |
|----------------------------------------------|----------------------------------------------|
| <b>Capacity/Loading</b>                      | 30 eurocards/two vertical spring wash frames |
| <b>Processing time/relative per eurocard</b> | approx. 40 min/80 s                          |
| <b>Tanks/circuits</b>                        | Three-tank system with three circuits        |
| <b>Process chamber (in mm)</b>               | W 700 • D 720 • H 710                        |

|  | AQUBE® XV9 ST                                 |
|--|-----------------------------------------------|
|  | 96 eurocards/four vertical spring wash frames |
|  | approx. 40 min/25 s                           |
|  | Three-tank system with three circuits         |
|  | W 970 • D 955 • H 900                         |



PCBAs



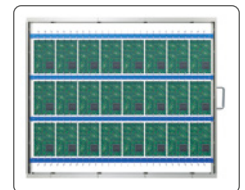
Hybrids



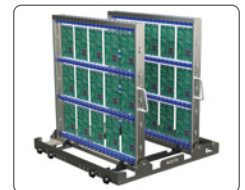
AQUBE® XV7



AQUBE® XV9



Spring wash frame



Washing cart

# AQUBE® LH series - The Classics

## Compact and economical

The AQUBE® LH series systems offer reliable precision cleaning of PCBAs, SiPs, HDI boards, and hybrids to remove contaminants such as flux and aggressive soldering aids.

Short process times and high capacity on a small footprint make them an important part of the value chain.

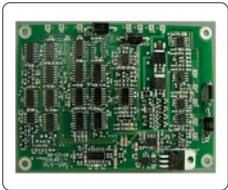
## The key features of the AQUBE® LH series

- Fully automatic 4-step process (cleaning, rinsing with tap water, rinsing with DI water, VMH® TurboDigital evaporation drying)
- Smart Factory ready
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids
- AQUBE® LH5 is also suitable for cleaning up to seven solder carriers up to 540 x 480 mm/21" x 19" (in a washing cart)

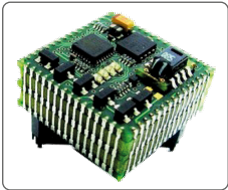


|                                           | AQUBE® LH5                                      |
|-------------------------------------------|-------------------------------------------------|
| Capacity/Loading                          | 176 eurocards (2,8 m²)/<br>two washing baskets  |
| Processing time/<br>relative per eurocard | approx. 65 min/22 s                             |
| Tanks/circuits                            | Two-tank system with<br>triple circuit function |
| Process chamber<br>(in mm)                | W 540 • D 590 • H 570                           |

| AQUBE® LH6                                       | <b>NEW</b> | AQUBE® LH7                                       |
|--------------------------------------------------|------------|--------------------------------------------------|
| 264 eurocards (4,2 m²)/<br>three washing baskets |            | 540 eurocards (8,6 m²)/<br>three washing baskets |
| approx. 65 min/15 s                              |            | approx. 65 min/7 s                               |
| Two-tank system with<br>triple circuit function  |            | Two-tank system with<br>triple circuit function  |
| W 540 • D 590 • H 710                            |            | W 700 • D 720 • H 710                            |



PCBAs



Hybrids



AQUBE® LH5



AQUBE® LH7



SpeedLoad cart



Washing basket

# PSE LH series - The Practical Ones

## Efficient and economical

The LH systems in the PSE Economy line ensure thorough cleaning, even of micro-contaminants on assembled PCBAs, SiPs, HDI boards, and hybrids. They remove contaminants such as flux and aggressive soldering aids.

PSE Economy systems focus on the essential criteria for a qualified cleaning process and are therefore available at attractive purchase prices.

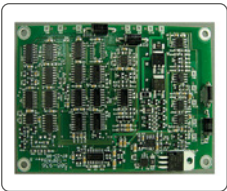
## The key features of the PSE LH series

- Fully automatic 4-step process (cleaning, rinsing with tap water, rinsing with DI water, VMH® TurboDigital evaporation drying)
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids
- High capacity in a small footprint and easy maintenance
- PSE LH5 is also suitable for cleaning up to seven solder carriers up to 540 x 480 mm/21" x 19" (in a washing cart)

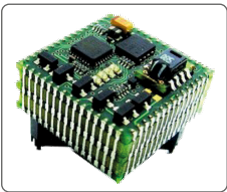


|                                           | PSE LH5                                         |
|-------------------------------------------|-------------------------------------------------|
| Capacity/Loading                          | 176 eurocards (2,8 m²)/<br>two washing baskets  |
| Processing time/<br>relative per eurocard | approx. 75 min/25 s                             |
| Tanks/circuits                            | Two-tank system with<br>triple circuit function |
| Process chamber<br>(in mm)                | W 540 • D 590 • H 570                           |

| PSE LH6                                          | PSE LH7                                          |
|--------------------------------------------------|--------------------------------------------------|
| 264 eurocards (4,2 m²)/<br>three washing baskets | 540 eurocards (8,6 m²)/<br>three washing baskets |
| approx. 75 min/17 s                              | approx. 75 min/9 s                               |
| Two-tank system with<br>triple circuit function  | Two-tank system with<br>triple circuit function  |
| W 540 • D 590 • H 710                            | W 700 • D 720 • H 710                            |



PCBAs



Hybrids



PSE LH6



PSE LH7



SpeedLoad cart



Washing basket

# AQUBE® MV series - The Accu rate Ones

## Individual yet suitable for many requirements

The fully automatic systems in the AQUBE® MV series represent high-end stencil cleaning. They remove SMD paste, SMD adhesive, conductive materials and flux efficiently and safely.

With their vertical, shadow-free ASYNCHRO® spray rotors close to the items being cleaned and PolyPower technology, they ensure thorough cleaning of even the smallest apertures, thus ensuring reliable printing processes for screens and stencils.

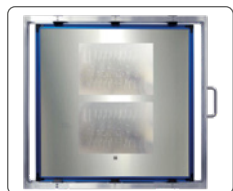
## The key features of the AQUBE® MV series

- Fully automatic 4-step process (cleaning, MediumWipe®, Rinsing with city water, CWA® supercharger compression drying)
- Also suitable for cleaning PCBAs and misprints
- ClosedLoop reprocessing of cleaning and rinsing fluids
- Water-free use possible - The systems can also use suitable cleaning/rinsing media (instead of water).



|                                          | AQUBE® MV3 ONE                                  |
|------------------------------------------|-------------------------------------------------|
| <b>Capacity</b>                          | Stencil/screen/washing frame up to 770 x 950 mm |
| <b>Process time/relative per stencil</b> | approx. 16 min                                  |
| <b>Tanks/circuits</b>                    | Two-tank system with two circuits               |
| <b>Process chamber (in mm)</b>           | W 350 • D 1,000 • H 920                         |

| AQUBE® MV8 sTWIN                                     | AQUBE® MV9 QUAD                                      |
|------------------------------------------------------|------------------------------------------------------|
| 2 Stencils/screens/washing frames up to 950 x 770 mm | 4 Stencils/screens/washing frames up to 800 x 940 mm |
| approx. 16 min/8 min                                 | approx. 28 min/7 min                                 |
| Two-tank system with two circuits                    | Two-tank system with two circuits                    |
| 2 x W 270 • D 1,000 • H 875                          | W 970 • D 955 • H 900                                |



Stencils



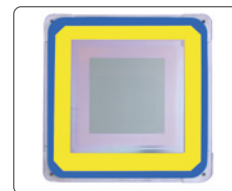
Screens



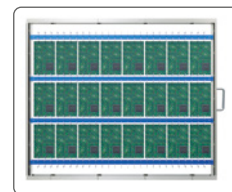
AQUBE® MV3 ONE



AQUBE® MV8 sTWIN



MTeck Stencils



PCBAs/Misprints

# PSE MV series - The Economical Ones

## Thorough and fast

The basic version of the PSE MV series systems are comprehensively equipped for the fine cleaning of stencils, screens, and unassembled misprints/bare boards (in a clamping frame).

The systems remove contaminants such as SMD paste, SMD adhesive, conductive materials, flux, oil, grease, or dust quickly and thoroughly.

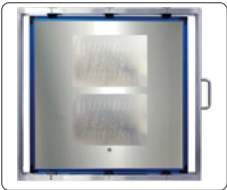
## The key features of the PSE MV series

- Fully automatic 4-step process (cleaning, MediumWipe®, Rinsing with city water, CWA® supercharger compression drying)
- ClosedLoop reprocessing of cleaning and rinsing fluids
- Water-free use possible - The systems can also use suitable cleaning/rinsing media (instead of water).
- Extremely compact - very small footprint

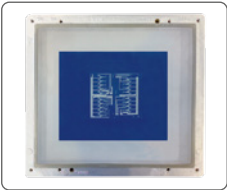


|                                   | PSE MV3 ONE                                     |
|-----------------------------------|-------------------------------------------------|
| Capacity                          | Stencil/screen/washing frame up to 770 x 950 mm |
| Process time/relative per stencil | approx. 20 min                                  |
| Tanks/circuits                    | Two-tank system with two circuits               |
| Process chamber (in mm)           | W 300 • D 1,000 • H 920                         |

|                                   | PSE MV8 TWIN                                         |
|-----------------------------------|------------------------------------------------------|
| Capacity                          | 2 Stencils/screens/washing frames up to 800 x 900 mm |
| Process time/relative per stencil | approx. 20 min/10 min                                |
| Tanks/circuits                    | Two-tank system with two circuits                    |
| Process chamber (in mm)           | W 550 • D 1,000 • H 875                              |



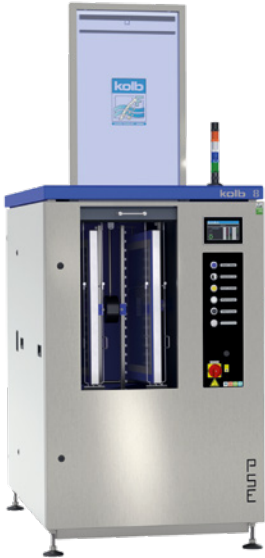
Stencils



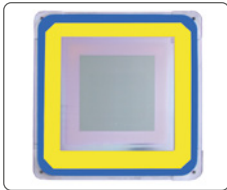
Screens



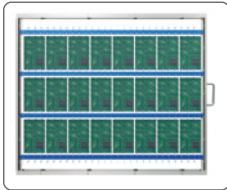
PSE MV3 ONE (former PSE 300 2VL)



PSE MV8 TWIN



MTeck Stencils



Misprints (Bare boards)

# PSE MVX series - The Special Ones

## For particularly large stencils

The PSE MVX series systems are special systems for the fine cleaning of particularly large stencils or screens. Nevertheless, the systems are extremely compact and require only a very small footprint.

They quickly and thoroughly remove contaminants such as SMD paste, SMD adhesive, conductive materials, flux, oil, grease, or dust.

## The key features of the PSE MVX series

- Fully automatic 4-step process (cleaning, MediumWipe®,
- Rinsing with city water, CWA® supercharger compression drying)
- ClosedLoop reprocessing of cleaning and rinsing fluids
- Water-free use possible - The systems can also use suitable cleaning/rinsing media (instead of water).



|                         | PSE MV3 ONE XL                      |
|-------------------------|-------------------------------------|
| Capacity                | Stencil/screen up to 770 x 1,560 mm |
| Process time            | approx. 25 min                      |
| Tanks/circuits          | Two-tank system with two circuits   |
| Process chamber (in mm) | W 300 • D 1.580 • H 920             |

|                         | PSE MV3 ONE XXL                       |
|-------------------------|---------------------------------------|
| Capacity                | Stencil/screen up to 1,500 x 1,560 mm |
| Process time            | approx. 35 min                        |
| Tanks/circuits          | Two-tank system with two circuits     |
| Process chamber (in mm) | W 300 • D 1.580 • H 1.660             |



XXL stencils/screens



PSE MV3 ONE XL



PSE MV3 ONE XXL



# PSE 300 series - The Favorable Ones

## Compact, thorough, economical

The user-friendly systems of the PSE 300 series with PowerSpray® technology are extremely compact and ideally suited for cleaning screens, stencils, PumpPrints, and unmounted misprints of SMD paste, SMD adhesive, flux, oil, dust, grease, etc.

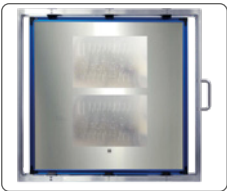
The systems are perfectly designed for smaller quantities or for use in efficient large-scale productions where a cleaning system can be installed directly at each printer.

## The key features of the PSE 300 series

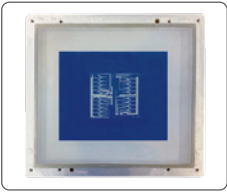
- PSE 300 HD, VS: Fully automatic 2-step process (cleaning/rinsing, drying)
- PSE 300 VL: Fully automatic 3-step process (cleaning/rinsing, MediumWipe®, Drying)
- ClosedLoop reprocessing of cleaning and rinsing fluids
- Water-free operation possible - The systems can also use a suitable cleaning/rinsing medium (instead of water).
- Extremely compact - very small footprint

| <div><div><div>PS</div><div>PowerSpray®</div></div><div><div>WaterFree</div></div></div> |                                                 |
|------------------------------------------------------------------------------------------|-------------------------------------------------|
| Capacity                                                                                 | Stencil/screen/washing frame up to 780 x 840 mm |
| Process time                                                                             | approx. 30 min                                  |
| Tanks/circuits                                                                           | Mono-tank system with two-tank function         |
| Process chamber (in mm)                                                                  | W 350 • D 920 • H 920                           |

| PSE 300 VS                                      | PSE 300 VL                                      |
|-------------------------------------------------|-------------------------------------------------|
| Stencil/screen/washing frame up to 780 x 950 mm | Stencil/screen/washing frame up to 780 x 950 mm |
| approx. 18 min                                  | approx. 13 min                                  |
| Mono-tank system with two-tank function         | Mono-tank system with two-tank function         |
| W 350 • D 1,000 • H 920                         | W 350 • D 1,000 • H 920                         |



Stencils



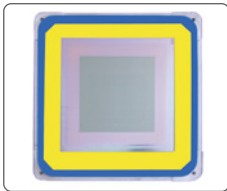
Screens



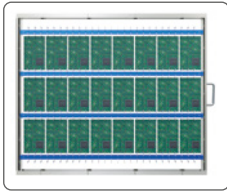
PSE 300 HD/PSE 300 VS



PSE 300 VL



MTeck Stencils



Misprints (Bare boards)

# AQUBE® MH series - The All-R ounders

## For solder carrier and tools cleaning

The user-friendly systems in the AQUBE® MH series meet virtually all requirements for solder carrier cleaning. They quickly and thoroughly also clean tools and containers contaminated with flux, conformal coating residues, oil, dust, and grease.

Short cycle times and high efficiency make these systems the perfect choice for any electronics manufacturing facility.

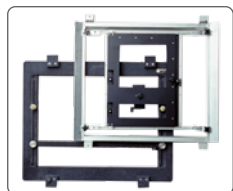
## The key features of the AQUBE® MH series

- Fully automatic 3-step process (cleaning, rinsing with tap water, VMH® hot air drying)
- Smart Factory ready
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids
- AQUBE® MH7 also available as a TZD system (more on TZD technology on pages 28, 29)

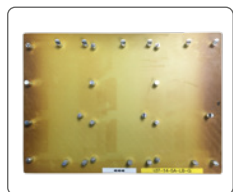


|                                               | AQUBE® MH6                            |
|-----------------------------------------------|---------------------------------------|
| <b>Capacity</b>                               | e.g. 7 carriers<br>up to 610 x 490 mm |
| <b>Process time/<br/>relative per carrier</b> | approx. 60 min/9 min                  |
| <b>Tanks/circuits</b>                         | Two-tank system<br>with two circuits  |
| <b>Process chamber<br/>(in mm)</b>            | W 540 • D 590 • H 710                 |

| AQUBE® MH7                             | AQUBE® MH9                             |
|----------------------------------------|----------------------------------------|
| e.g. 11 carriers<br>up to 640 x 640 mm | e.g. 28 carriers<br>up to 750 x 950 mm |
| approx. 60 min/5 min                   | approx. 60 min/2 min                   |
| Two-tank system<br>with two circuits   | Two-tank system<br>with two circuits   |
| W 700 • D 720 • H 710                  | W 970 • D 955 • H 900                  |



Solder frames/Carriers



Coating carriers



AQUBE® MH6



AQUBE® MH7



ESD Boxes



Machinery parts

# PSE MH series & AF04 - The Thorough Ones

## Economical yet comprehensively equipped

The fully automatic systems in the PSE MH series remove flux, coating varnishes, oil, dust, and grease from solder frames, carriers, ESD boxes, circuit board magazines and machine parts, for example.

The semi-automatic AF04 cleans solder frames, solder carriers, and condensate filters/coolers from condensate management systems in reflow soldering systems.

## The key features

### PSE MH series

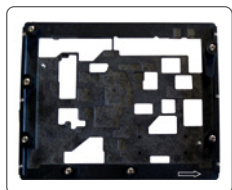
- Fully automatic 3-step process (cleaning, rinsing with tap water, VMH® hot air drying)
- Suitable for high-temperature cleaning up to 80 °C
- ClosedLoop reprocessing of cleaning and rinsing fluids

### AF04

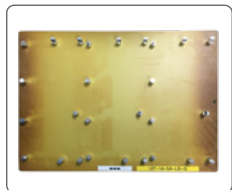
- Semi-automatic three-chamber AirFlow® cleaning system
- Ready to connect (plug & work) including initial filling
- Low purchase price

|  | PSE MH6                                          |
|-----------------------------------------------------------------------------------|--------------------------------------------------|
| <b>Capacity</b>                                                                   | e.g. 7 solder frames/carriers up to 610 x 490 mm |
| <b>Process time/relative per carrier</b>                                          | approx. 70 min/10 min                            |
| <b>Tanks/circuits</b>                                                             | Two-tank system with two circuits                |
| <b>Process chamber (in mm)</b>                                                    | W 540 • D 590 • H 710                            |

|  | AF04                                                              |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Capacity</b>                                                                     | e.g. 9 solder frames/carriers bis zu 610 x 470 mm                 |
| <b>Process time/relative per carrier</b>                                            | approx. 60 min/9 min                                              |
| <b>Tanks/circuits</b>                                                               | Three-chamber system                                              |
| <b>Process chamber (in mm)</b>                                                      | Cleaning: W 580 • D 610 • H 470<br>Rinsing: W 200 • D 610 • H 470 |



Solder masks



Coating carriers



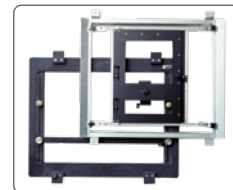
PSE MH6



PSE MH7



AF04



Solder frames

# AF series - The Robust Ones

## Efficient and user-friendly

The fully automatic AF series cleans components from flux management systems (coolers, filters, heat exchangers, metal sheets) from virtually all manufacturers, as well as turned and milled parts, and die-cast components, removing flux, condensate, dust, and grease.

The uniformly intensive cleaning provided by AirFlow® air in immersion technology is quick and thorough, even in hard-to-reach areas.



|                            | AF20                                           |
|----------------------------|------------------------------------------------|
| Capacity                   | Usable chamber volume<br>W 800 x D 430 x H 500 |
| Process time               | approx. 60 min                                 |
| Tanks/circuits             | Two-tank system<br>with two circuits           |
| Process chamber<br>(in mm) | W 800 • D 430 • H 540                          |



Condensation traps



Solder Carriers



AF20

## The key features of the AF series

- Loading and unloading in empty process chamber (no manual contact with the detergent)
- ClosedLoop reprocessing of cleaning and rinsing fluids
- Event output and control via touchscreen
- External cleaning of cyclones and oven tubings optionally possible
- Integrated automatic re-dosing (with the AF75 directly from an external IBC container)

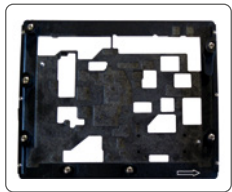
| AF30                                              | AF75                                                |
|---------------------------------------------------|-----------------------------------------------------|
| Usable chamber volumen<br>W 1.300 • D 590 • H 430 | Washing basket volume<br>W 705 • D 1.165 • H 510 mm |
| approx. 60 min                                    | approx. 60 min                                      |
| Two-tank system<br>with two circuits              | Two-tank system<br>with two circuits                |
| W 1.300 • D 590 • H 480                           | W 770 • D 1.280 • H 600 mm                          |



AF75



Condensate filters



Solder masks

# Maximum Sustainability - The TZD Technology

## ToZero Discharge - up to 90 % savings of rinse water

Sustainability has been part of our DNA since our company was founded in 1988. Resource-saving and durable systems, efficient and cost-saving low-temperature cleaners are only part of our sustainability concept.

Based on this aspiration, we have developed a technology that perfectly combines ecological responsibility and economic efficiency.

Thanks to our TZD (ToZero-Discharge) technology, for example, an AQUEB® XH7 TZD can **save up to 90 percent more rinse water** compared to an AQUEB® XH7 system (equipped with ClosedLoop water treatment as standard), which is already very water-efficient. This means that rinse water consumption can be **reduced to as little as 3 liters per cycle**.

This enables operating companies to significantly reduce rising costs for fresh water and wastewater disposal while also contributing to sustainability in the use of drinking water, a vital resource.

|   | AQUEB® XH7 TZD                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Capacity/Loading                                                                                                                                                    | 540 eurocards (8,6 m²)/<br>three washing baskets |
| Processing time/<br>relative per eurocard                                                                                                                           | approx. 65 min/7 s                               |
| Tanks/circuits                                                                                                                                                      | Five-tank system with<br>five circuits           |
| Process chamber<br>(in mm)                                                                                                                                          | W 700 • D 720 • H 710                            |

| AQUEB® XV7 ST TZD                             | AQUEB® MH7 TZD                           |
|-----------------------------------------------|------------------------------------------|
| 30 eurocards/<br>two vertical clamping frames | e.g. 11 carriers<br>up to 640 x 640 mm   |
| approx. 40 min/80 s                           | approx. 60 min/5 min                     |
| Five-tank system with<br>five circuits        | Three-tank system<br>with three circuits |
| W 700 • D 720 • H 710                         | W 700 • D 720 • H 710                    |

## ToZero Discharge - briefly explained

In contrast to the conventional process with a single rinsing stage for the first rinse, TZD technology for the first time in a batch system uses software-controlled multi-stage rinsing technology with two (AQUEB® MH7 TZD) or three rinsing cycles (AQUEB® XH7 TZD & XV7 ST TZD) and a counter-flow cascaded water exchange process for the first rinse.

Thanks to the cascading exchange within these rinsing stages, when the alternating load is reached, no longer all of the rinsing water is disposed of, as is generally customary, but only the rinsing water from the first, most heavily loaded stage. The rinse water from the cleaner stages is then pumped "forward," and only the last tank is refilled with fresh rinse water. Only as much or rather as little as is necessary according to software monitoring to ensure the rinse quality of the entire process.



# Water management systems - The Sustainable Ones

## Resource-efficient, ecological, and economical

The use of aqueous alkaline cleaners still requires rinsing with tap water and/or deionized water. This makes water management an increasingly important factor in the cleaning of products and tools in electronics production.

All **kolb** cleaning systems with two or more separate circuits already have an internal rinse water (ClosedLoop) treatment cycle integrated. Here, the rinse water is reprocessed and used several times before it needs to be replaced.

In addition, our water management modules help to significantly reduce water and disposal costs.



WPCL IU



WPSD IU 6/7/9

## The kolb SYMBIO® modules for system integration

Our water management systems are fully enclosed, fully integratable modules that are installed in appropriately pre-equipped systems and only slightly increase their footprint.

**WPCL IU** modules (available for AQUBE® XH7 and XH9)

WPCL IU modules use CrossLoop crossover technology to recycle used water and recirculate flushable DI/VE-water into the rinse cycle, significantly reducing the cost of fresh water and contaminated water disposal.

**WPSD IU** modules (available for all AQUBE® systems and AF30, AF75 (except AQUBE® MV8 sTWIN, MV3 ONE))

The WPSD IU modules are wastewater treatment systems for rinse water containing heavy metals for indirect discharge into the public sewer system. They use the **kolb** SafeDrain process to treat used and contaminated rinse water with excessive levels of heavy metals such as lead, tin, silver, and copper, including (optional) pH value regulation, so that it can then be indirectly discharged into the public sewage system, e.g., in accordance with the provisions of §151, Annex 40 WHG, Paragraph 7a, of the German Water Resources Act or after approval by the relevant local authority.



WPSD IUAF30

# kolb detergents - Highly effective and resource-efficient

A small excerpt from our range of detergents



## MultiEx® VR-series

The MultiEx® VR series offers water-based, homogeneous, low-temperature detergents with a broad range of cleaning power and a long bath life, which are ideal for the thorough and resource-efficient cleaning of PCBAs.



## MultiEx® NP-1

MultiEx® NP-1 is a water-based, homogeneous, low-temperature detergent with a neutral pH value that is ideal for thorough, gentle and resource-efficient cleaning of PCBAs.



## MultiEx® 3D-series

The MultiEx® 3D-Series series offers water-based, homogeneous, low-temperature detergents with a broad range of cleaning power, a special cleaning technology and a long bath life. They are ideal for the thorough and resource-efficient cleaning of

PCBAs and power electronics, as well as for the reliable cleaning of solder frames and carriers.



## MultiEx® N7-TS

MultiEx® N7-TS is a water-based, homogeneous and pH-neutral low-temperature detergent with a broad range of cleaning power, integrated rinsing function and long bath life, which is ideal for thorough, gentle and resource-efficient cleaning processes

for stencils and screens.

All kolb detergents, rinsing fluids, service and analysis products can be found on our website: [www.kolb-ct.com](http://www.kolb-ct.com)



## MultiEx® A12

MultiEx® A12 is a water-based, homogeneous, low-temperature detergent with a broad range of cleaning power and a long bath life, making it ideal for the thorough and resource-efficient cleaning of solder frames and carriers.



## ContraFlux®-series

The ContraFlux® series offers water-based, homogeneous low-temperature detergents with a broad range of cleaning power, ideal for thorough and resource-efficient cleaning of condensate traps and filters, as well as for reliable cleaning of solder

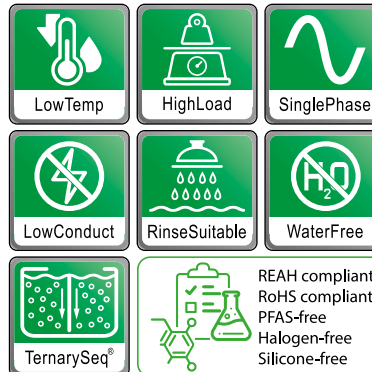
frames and carriers



## WetWipes®/OF1®/G50®/CF1® and more

We also offer a wide range of manual cleaning products for tools used in electronics production, as well as for cleaning process chambers and other soldering system components.

### Your kolb benefits



The complete kolb chemistry portfolio can be found in our web catalog.

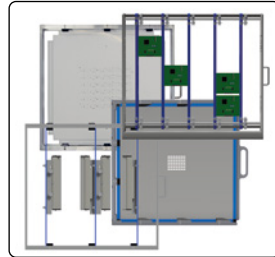


# Accessories

The range of options and accessories for **kolb** cleaning systems offers everything from washing frames to reservoirs, from storage trolleys to online brix systems, making the cleaning process easier, faster, and more efficient. Options and accessories can be incorporated directly into the construction of the system or, in some cases, be retrofitted or delivered at a later date.

## Flexible washing frames

- with adapters for the cleaning of frameless stencils
- PumpPrint stencils
- DEK Vector-Guards
- misprinted circuit boards
- PCBAs
- squeegees and spatulas



## Load- and storage carts

The frame and stencil storage cart for up to five stencils/frames is the optimal solution for transport and positioning at the cleaning system. The cart also serves as a setup station, e.g., for loading PCBAs into a washing frame.



## ServiceCase SCBA/SCBA-Pro

for fast and reliable process control of cleaning media.

Measured values:

- Refraction (brix)
- pH value
- Conductance ( $\mu\text{S}$ )



# Certifications

## Our most important certificates

Efficiency, cost-effectiveness, and safety are outstanding features of our cleaning systems. You will find the relevant certifications on our cleaning systems.



Our patented ENERSAVE technology enables our cleaning systems to operate with the lowest power consumption and higher performance compared to competing products. High-voltage installations are not necessary, nor are additional safety measures - not to mention significant savings in energy costs.



The WATERSAVE-certified ClosedLoop and CrossLoop technologies from **kolb** help save water by recycling contaminated rinsing fluids. All our cleaning systems are equipped with integrated ClosedLoop for treatment as standard and enable multiple cycles with minimal losses. CrossLoop systems can further increase this performance.



The 5-star SAFEGAR guarantee ensures that all safety-related features, such as the safety lock on the process chamber door, an overflow alarm for all tank sections, overheating protection for all heating and drying elements, limit switches for all motor-driven valves and drives, and personal safety switches for all tank sections, are included.



The **kolb** EASOTECH construction process offers state-of-the-art technology with the most convenient possible operation. Process stability, speed, compactness, robustness, and cost-efficiency of our systems are based on complex mechanical engineering and intelligent software design. This allows these sophisticated technologies to be used in day-to-day business with minimal time expenditure.



## **kolb Campus**

Our knowledge program, "**kolb** Campus" offers training courses on optimal and profitable electronics cleaning. Also manufacturer-independent.



## **Service requests**

Do you require our assistance?

If you have any questions, you can reach us Monday through Friday from 8 a.m. to 3 p.m. at **+49 2154 9479-44**.

If you require a service technician, please send us the completed **kolb** service request form. You can find this in the manual for your cleaning system or online.



## **Consulting & Sales**

Our **technical sales department** is available Monday through Thursday from 9 a.m. to 5 p.m. and Friday from 9 a.m. to 3 p.m. at **+49 2154 9479-11**.

You can reach our **order processing department** at **+49 2154 9479-38**.

**Visit us anytime at our location in Willich:**

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You can find the contact details for our international branches and sales partners at **[www.kolb-ct.com](http://www.kolb-ct.com)**.