TECHNICAL INFORMATION

AQUBE® MH7 TZD

"All-round" tools and parts cleaning system with ToZero Discharge rinsing technology

AQUBE® MH7 TZD

State of the art "all-round" PowerSpray® tools and parts cleaning system with ToZero Discharge technology

Cleans solder frames, solder carriers, coating carriers, ESD boxes, PCB magazines, trays, machinery parts

Capacity: 11 carriers up to 610 x 640 (24" x 25") or 640 x 640 mm (25" x 25") or up to three washing drawers

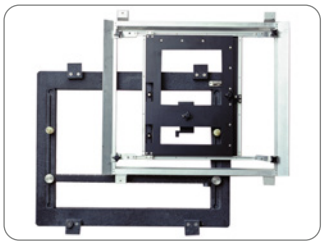
Part number: 0900AQ7MH-X

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.

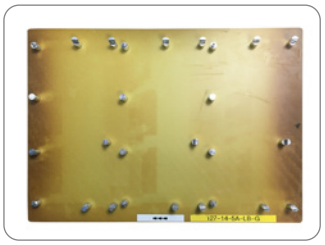
- Three-tank system with three separate circuits - saves up to 70% rinsing water
- Average process time: 60 min/cycle = approx. 5 min per carrier
- Intelligent network connectivity for implementation in industry 4.0 smart factories
- Fully automatic 4step: cleaning, 2x TZD-rinsing (tap water), VMH®-Digital hot air evaporative drying
- Horizontal PTFE-mounted rotor system with ASYNCHRO® spray rotors for thorough wetting (no blind spots)
- 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
- Suitable for high temperature cleaning and rinsing up to 80 °C (176 °F)
- High capacity on a small footprint, fast and easy maintenance

Key applications


Solder frames, solder carriers


ESD boxes, magazines


Machinery parts


Conformal coating carriers

The AQUBE® MH7 TZD is an "all-round" high-end cleaning system with PowerSpray® technology developed and manufactured entirely in Germany for almost all electronic tools cleaning requirements - e.g. for carriers and containers contaminated with flux, coatings, oil, dust and grease.
With cleaning temperatures of up to 80 °C and drying temperatures of up to 120 °C, it is also ideally suited for the **kolb** complete solution (system, cleaner, process design, software) for cleaning/paint stripping of painting carriers/coating carriers.
The integrated TZD (ToZero Discharge) technology reduces rinsing water consumption by approx. 70 percent compared to a standard system. This also reduces the waste water disposal volume accordingly. This means a drastic reduction in operating and disposal costs while maintaining the same wash quality, as well as enormous savings in the vital resource of water.
The compact, easy-to-operate and easy-to-maintain system is Smart Factory ready and pre-equipped for further water management.

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	Optional suitable	Most suitable	Most suitable	Optional suitable
PCBAs, Hybrids	Stencils	Solder frames	ESD Boxes	Condensation traps
Power electronics	Screens	Solder carriers	Containers	Filters
Misprints	Misprints (bare boards)	Coating carriers	Magazines	Steel sheets

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

Cleaning (key process 1): 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 PTFE-mounted ASYNCHRO® stainless steel spray rotors with special 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 (TA) before the valve switchover closes.

Drying (intermediate process only relevant for paint stripping processes): Process description under key process 3.

TZD rinsing with tap water (key process 2): ZD rinsing uses two separate tanks with two separate circuits and a counter-cascaded water exchange process. The rinse water is pumped from the rinse tanks B (TB1, TB2) via the two circuits into the spray rotors. For information: tap water has the advantage of lower surface tension (compared to DI-/DM-water) and therefore rinses critical areas such as low-standoffs more effectively.

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 (TB/C).

Drying (key process 3): 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 45 and 120 °C (113 and 248 °F) - 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 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 XL-power (tank A) and S-Power (tank B/C) pump units, twofold ASYNCHRO® volume-spray rotor system with low maintenance PTFE-mounted stainless steel rotors with special nozzles, "Option100" software program (100 freely selectable programs)
■	PolyPower XL pump-nozzles configuration
■	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), Remote Maintenance Assistance (see options)
□	Function package TZD Technology Rinsing - to reduce rinse water consumption to up to 70 % per cycle (incl. 2-tank cascade rinsing unit)
■	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
□	Full flow coarse filter (process chamber)
□	ClosedLoop reprocessing of cleaning and rinsing fluids
□	Automatic re-dosage unit for 25 l detergent container
□	Automatic water change for rinsing circuit/tank B/C with lifting unit
■	VMH®-TurboDigital evaporative drying (control range approx. 45 - 120 °C/113 - 248 °F)
□	Integrated VaporStop in the exhaust air unit
□	Washing cart for solder frames
□	ESD grounding point for the operating personnel
□	Spare space for DI-/DM-water 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

■ = AQUBE®-exclusive components (vs. **kolb** PSE Economy series)

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Main options

■	Function package High-Temperature Application (incl. process chamber heat insulation and In-VaporStop temperature stabilization)
□	Function package Fine Filter System Tank A (incl. upgrade to XXL-Power pump unit for the cleaning circuit, fine filter system for the cleaning tank A (TA)
□	Function package Fine Filter System Tank B (incl. upgrade to XL-Power pump unit for the rinsing circuit, fine filter system for the rinsing tanks B (TB1, TB2)
■	Function package Online Cleaner Regulation (incl. brix monitor for refraction measurement, automatic re-dosing of the cleaner, flow meter, dosing ball valve)
■	Function package TZD Technology Rinsing - to reduce rinse water consumption to up to 90 % per cycle (incl. 2-tank cascade rinsing unit)
□	Function package WPSD IU Wastewater Treatment Unit (incl. WPSD IU5/7 SYMBIO® module, pH-lowering unit with pH measuring probe, pH re-dosing, control valves, two heavy metal adsorber cartridges, two cartridge deaerators)
□	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
■	Automatic water change for cleaning circuit
□	Decalcification unit for reducing the lime content in the rinsing water (tap water) circuit/rinsing tank B (TB)
□	Desealing filter insert for coating cleaning/paint stripping processes
■	Heater for tank A (cleaning)
□	Air filter unit for filtering the drying air according to filter class F7
□	MediumWipe® unit for further optimization of detergent and rinsing fluid use
□	Remote control (browser-based control/monitoring via mobile device or PC)
■	RMA Remote Maintenance Assistance (factory-controlled maintenance support)
□	Drawer inserts for container and machinery parts cleaning, ESD safe
□	Paint of choice (frame rack, coverings and hood)
□	XXL-Power pump unit for the cleaning circuit/cleaning tank A (TA)

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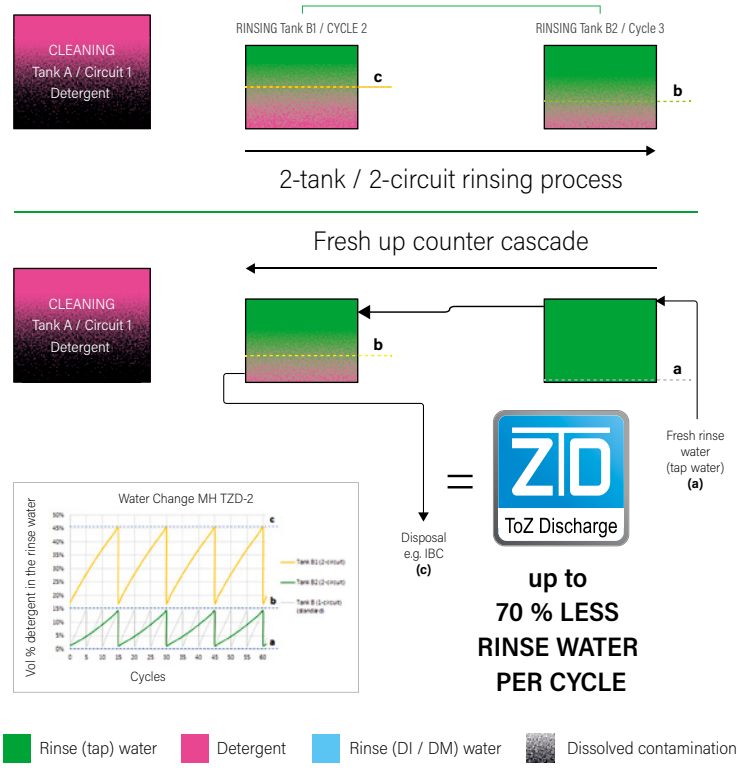
TZD (Zero Discharge) rinse water processing

Tank configuration **kolb** AQUBE® MH systems with TZD Technology (5 tanks)



Option for water management*

WPSD IU SYMBIO® module
Processes mandatory disposable sewage water to be discharged into a public sewage network

* 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/, consulting requests to info@kolb-ct.com

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Technical data

Technology base	**kolb** PowerSpray®
Capacity per process ccycle	11 carriers up to 610 x 640 (24" x 25") or 640 x 640 mm (25" x 25") or up to three drawer inserts
Process chamber dimensions	W 700 ▪ H 710 ▪ D 720 ▪ mm (W 27.55"▪ H 27.95" ▪ D 28.34")
Usable space using wash cart	B 610 ▪ T 625 ▪ H 625 mm (W 24"▪ H 24.6" ▪ D 24.6")
Usable space utilizing three drawer baskets	H 150 ▪ T 620 mm (H 5.9" ▪ D 24.4") three times
Volume tank A (cleaning)	95 l
Volume tanks B (TB1/TB2) (rinsing)	65 l/65 l
Power supply	400 V AC, 16 A, CEE plug/3 Ph/50 or 60 Hz
Power consumption	6,.3 kW
Control system	PLC (EATON)
Temperature load	up to 80 °C (176 °F)
Control range drying	approx. 45 - 120 °C (113 - 248 °F)
Filter system	1. Full flow coarse filter < 2 mm, 2. 20“ fine filter (1 - 100µm - process dependent)
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") compressed air hose
Rinse water drain connection	(with integrated pump-out system) connection for 1" hose
Exhaust connection	Ø 160 mm (6.3"), exhaust capacity 200 - 300 m^3/h (7,063 - 10,595 ft^3/h)
Operating condition room temperature	approx. 20 - 35 °C (68 - 95 °F)
Foot print/Empty weight/Operating noise	1,400 x 1,550 mm (55.2" x 61")/650 kg (1,433 lbs)/63 dB(A)