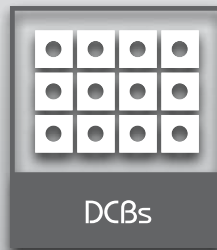
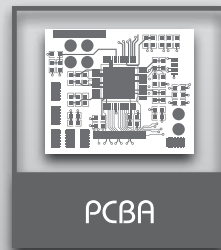




COMBO
Expanded Capacity
in 3 Baskets



TWINGO
Large & Complex
Boards in 2 Frames

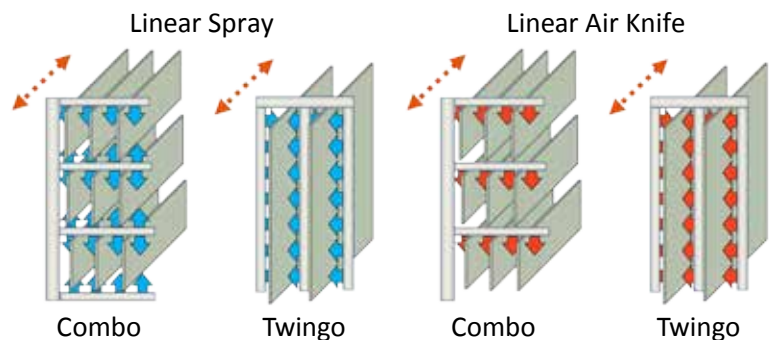


- P** 2 Machines in 1
- P** Flexible Interchangeable Setups
- P** Quick & Easy Loading
- P** Complete Automation Option
- P** Rapid Wash & Rinse
- P** Fast Drying
- P** Stable Cleaning Results
- P** Simple Maintenance
- P** Low Drain or Zero Drain
- P** Compact Dimensions



CONTROL FEATURES

- P** Adaptive rinse water quality control
- P** AAD Automatic adaptive cleaner dosing with concentration sensor Zestron Eye or Kyzen Analyst integrated in machine OS
- P** Intuitive touchscreen interface with Windows OS
- P** Complete datalogging, LAN connectivity
- P** 2D code traceability
- P** Multi language selection



FLEXIBLE & POWERFUL DEFLUXING

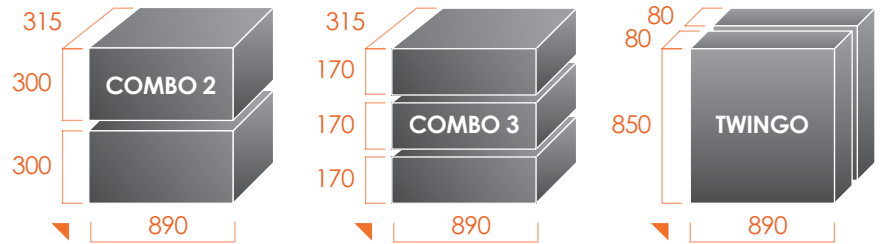
MACHINE TYPE

- ◆ HyperSWASH III Wash + Rinse I + Rinse II + Dry

PCBA after soldering, before coating,
Power electronics, Micromechanics

CHAMBER CONFIGURATION

- ◆ COMBO – multi-level basket
- ◆ TWINGO – double frame
- ◆ Easy exchange between Combo and Twingo configurations



CLAMPING OPTIONS

- ◆ Wide range of standard fixtures and adaptors for any types of PCBAs
- ◆ Customization is available for any clamping fixtures

Multi-level basket

Multi-level basket

Double frame

Horizontal bars

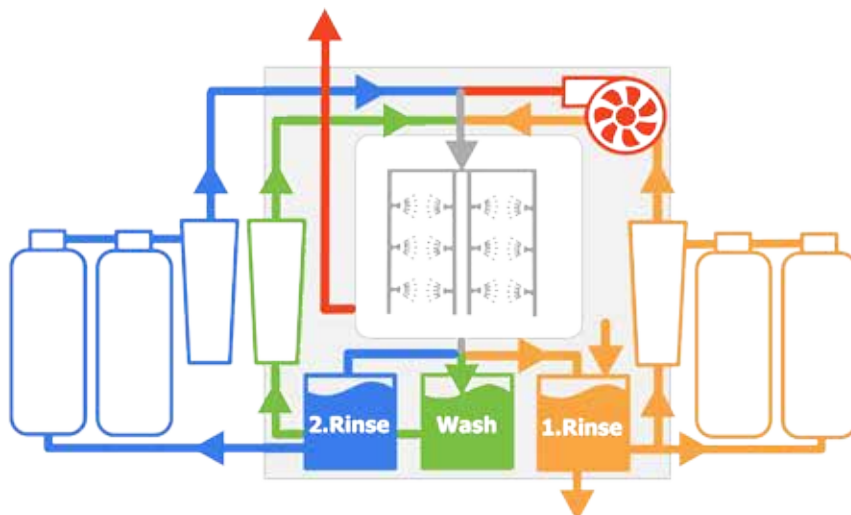
Baskets

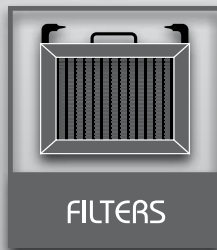
DCB Holder



RINSE CONFIGURATION

- ◆ Zero drain - close loop
- ◆ Low drain - semi-open or open loop
- ◆ Special filtration strategy for the highest flow
- ◆ First rinse filtration fully separated from second rinse filtration
- ◆ External carts with up to 39l of mixed bed and 39l active carbon





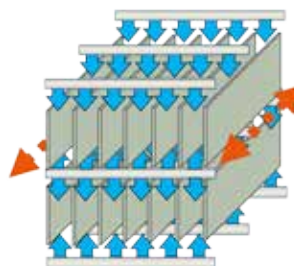
- P** Large Chamber for High Capacity
- P** Short Cycle Time
- P** Quick & Easy Loading
- P** Single Basket or Double Basket
- P** Rapid Wash and Rinse
- P** Fast Drying
- P** Basket Oscillation
- P** Low Running Cost
- P** Convenient Maintenance



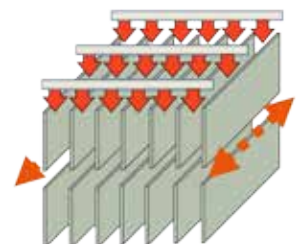
CONTROL FEATURES

- P** PLC control system
- P** Intuitive touchscreen interface with Windows OS
- P** Complete datalogging
- P** 2D code traceability
- P** Multi language selection

Uniform Spray



High Flow Dryer



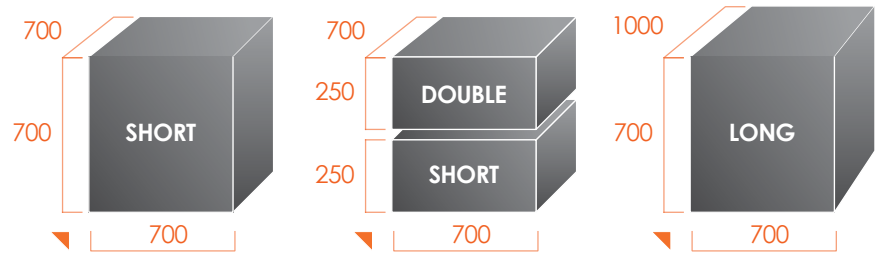
HIGH CAPACITY MAINTENANCE CLEANING

MACHINE TYPE

- ◆ **HyperCLEAN II** Wash + Chemical stop + Rinse + Dry **Soldering pallets, Filters, SMT Magazines**

CHAMBER CONFIGURATION

- ◆ **SHORT** – single short basket
- ◆ **DOUBLE SHORT** – double short basket
- ◆ **LONG** – single long basket



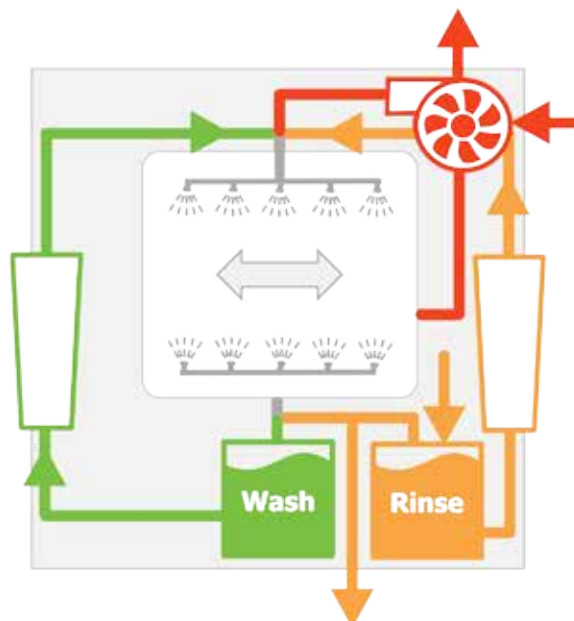
CLAMPING OPTIONS

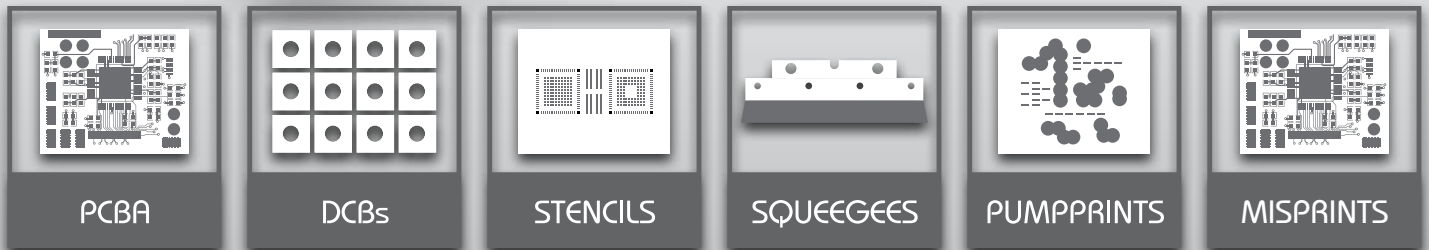
- ◆ Basket with separators for pallets, filters, SMT Magazines
- ◆ Customization available



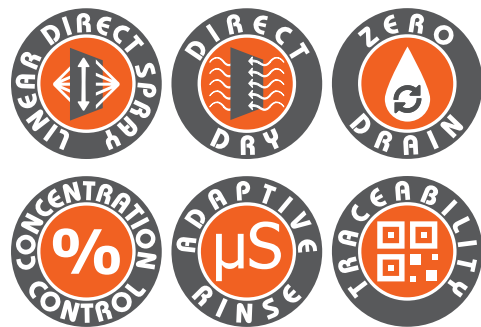
RINSE CONFIGURATION

- ◆ Chemical stop reduces cross contamination by flushing off contamination after washing, directly from chamber
- ◆ Rinse tank dilution by fresh water after chemical stop, keeping rinse tank always fresh



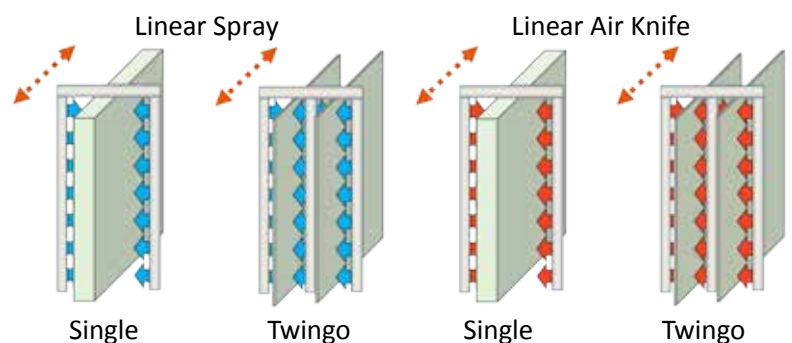


- P** Twingo = Double Capacity
- P** Precise Wash & Rinse
- P** Direct Spray & Direct Dry
- P** Low Drain or Zero Drain
- P** Wash Concentration Control
- P** Illuminated Chamber
- P** Quick Reloading Frame Stand
- P** Simple Maintenance



CONTROL FEATURES

- P** Adaptive rinse water quality control
- P** AAD Automatic adaptive cleaner dosing with concentration sensor Zestron Eye or Kyzen Analyst integrated in machine OS
- P** Complete datalogging, LAN connectivity
- P** 2D code traceability
- P** Intuitive touchscreen interface with Windows OS
- P** Multi language selection



HIGH PERFORMANCE CLEANING

MACHINE TYPE

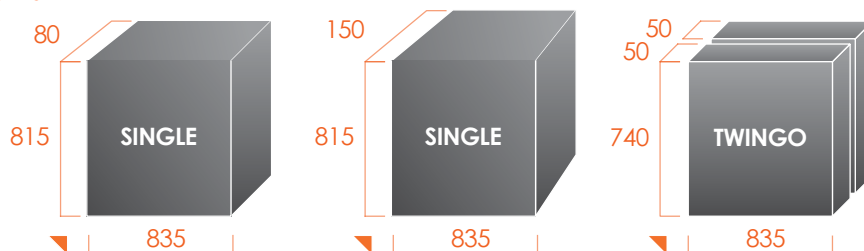
- ◆ SuperSWASH II Wash + Rinse + Dry
- ◆ SuperSWASH III Wash + Rinse I + Rinse II + Dry

Stencils, Squeegees, Misprints, PumpPrints

PCBA after soldering, before coating, Power electronics

CHAMBER CONFIGURATION

- ◆ SINGLE – single frame
- ◆ TWINGO – double frame
- ◆ Easy exchange between Single and Twingo



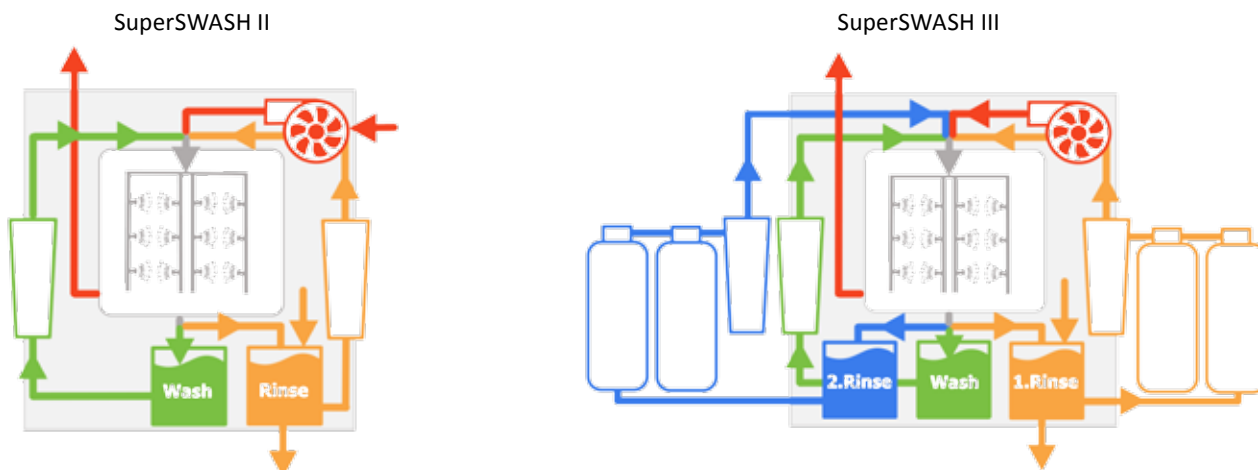
CLAMPING OPTIONS

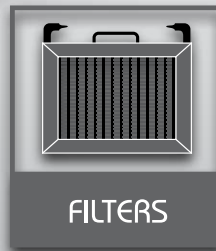
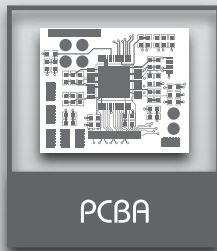
- ◆ Wide range of standard fixtures and adaptors for any types of PCBAs and stencils
- ◆ Customization is available for any clamping fixtures
- ◆ Framed stencils fit right into the machine chamber



RINSE CONFIGURATION

- ◆ First rinse filtration fully separated from second rinse filtration
- ◆ Integrated 16l chemical filters filled with mixed resin and active carbon
- ◆ External carts with 39L chemical filters
- ◆ Possibility to connect to external water source for refilling rinse tank





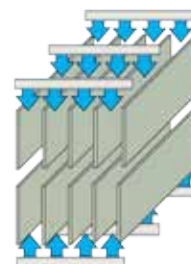
- P** Small Footprint
- P** Single Basket or Double Basket
- P** Easy Loading
- P** Basket Oscillation
- P** Uniform Tangent Spray
- P** Shadow Mitigating System
- P** Adaptive Rinse
- P** Closed or Open Loop
- P** Low Running Cost



CONTROL FEATURES

- P** Adaptive rinse water quality control
- P** AAD Automatic adaptive cleaner dosing with concentration sensor Zestron Eye or Kyzen Analyst integrated in machine OS
- P** Complete datalogging, LAN connectivity
- P** 2D code traceability
- P** Intuitive touchscreen interface with Windows OS
- P** Multi language selection

Uniform Spray



COMPACT BATCH CLEANING

MACHINE TYPE

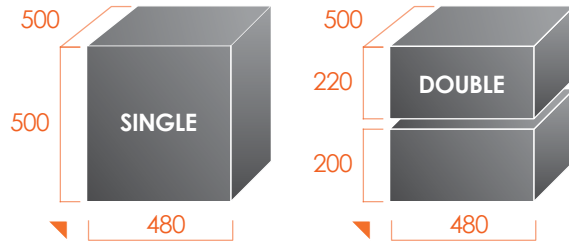
- ◆ CompaCLEAN II Wash + Rinse I + Dry
- ◆ CompaCLEAN III Wash + Rinse I + Rinse II + Dry

Soldering pallets

PCBA after soldering

CHAMBER CONFIGURATION

- ◆ SINGLE – single basket
- ◆ DOUBLE – double basket



CLAMPING OPTIONS

- ◆ Wide range of standard fixtures for any types of PCBAs, electronic assemblies and soldering pallets
- ◆ Customization is available for any clamping fixtures

PCBA Rack

Double PCBA Rack

Horizontal bars

Combination

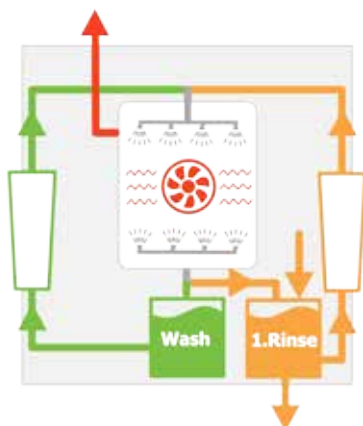
Pallet rack



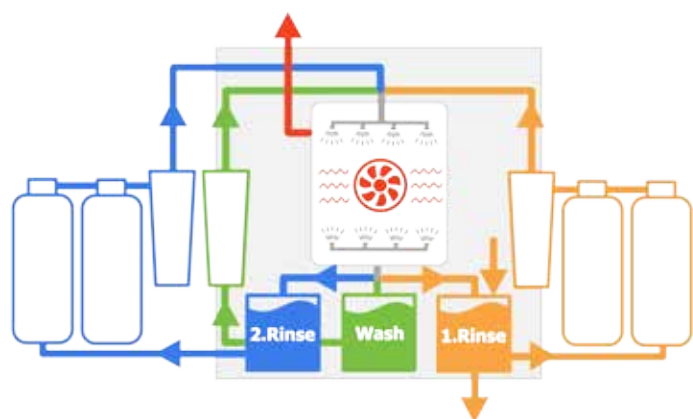
RINSE CONFIGURATION

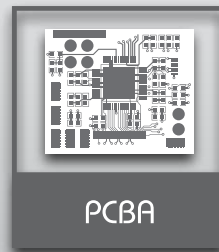
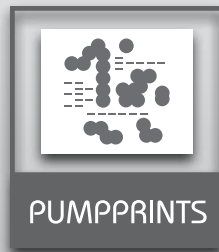
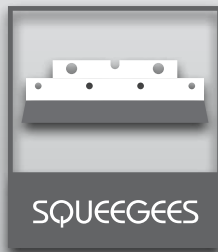
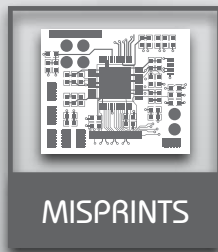
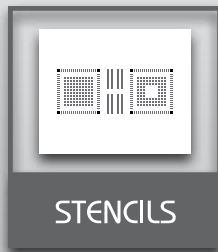
- ◆ Integrated 16l chemical filters keep the machine footprint as small as possible
- ◆ First rinse filtration fully separated from second rinse filtration
- ◆ External carts with 39L chemical filters filled with mixedbed resin and active carbon
- ◆ Optional cascade filtration from second to first rinse tank
- ◆ Possibility to connect to external water source for refilling rinse tank

CompaCLEAN II

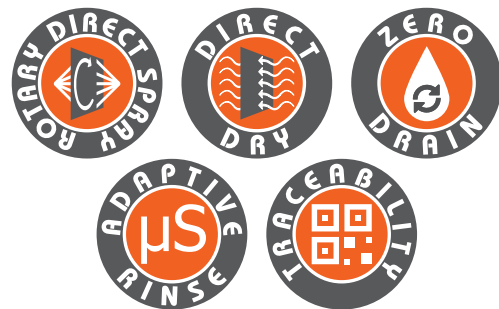


CompaCLEAN III



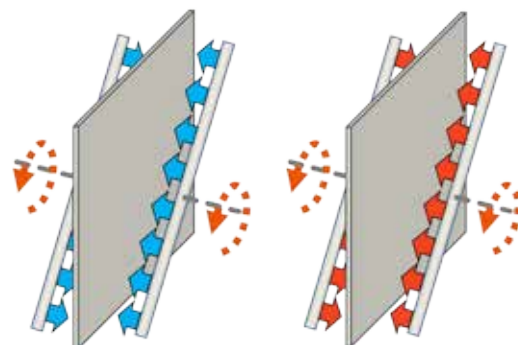


- P** Small Footprint
- P** Single Chamber System
- P** Direct Spray-in-Air
- P** Air-Knife Fast Drying
- P** Synchronized Spray Bars
- P** Closed or Open Loop
- P** Rinse Control
- P** Low Running Cost
- P** Easy to Move



Rotating Spray

Rotating Air Knife



CONTROL FEATURES

- P** PLC control system
- P** Intuitive touchscreen interface
- P** 2D code traceability, LAN connectivity
- P** Adaptive rinse process control
- P** Multi language selection

ENTRY-LEVEL CLEANING

MACHINE TYPE

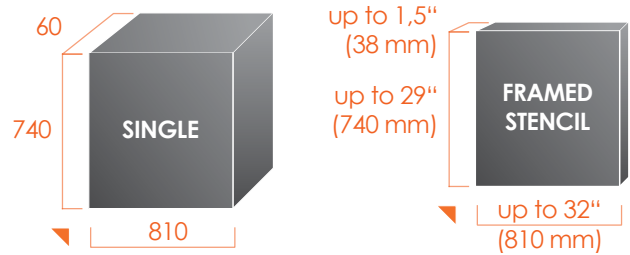
- ◆ **MiniSWASH II** Wash + Rinse + Dry
- ◆ **MiniSWASH III** Wash + Double Rinse + Dry

Stencils, Squeegees, PumpPrints

Misprints, PCBA after soldering

CHAMBER CONFIGURATION

- ◆ SINGLE FRAME
- ◆ FRAMED STENCIL



CLAMPING OPTIONS

- ◆ Conventional framed stencils and screens fit directly into the built-in adjustable clamping
- ◆ Wide range of standard fixtures and adaptors for other types of stencils and PCBAs
- ◆ Customization is available for any clamping fixtures

Framed stencils

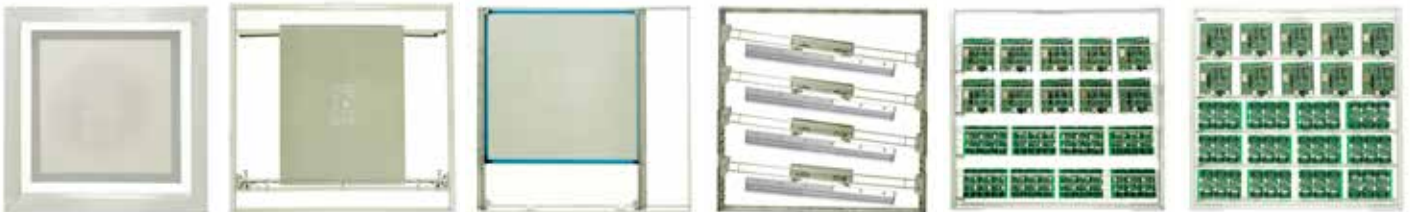
Plain stencil holder

DEK VectorGuard

Squeegee Holder

Baskets

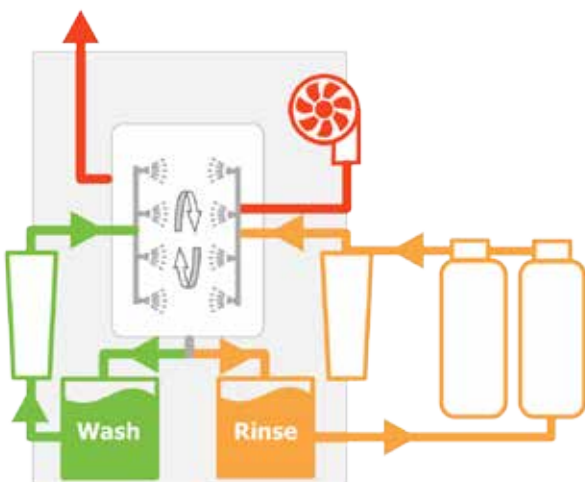
Horizontal bars



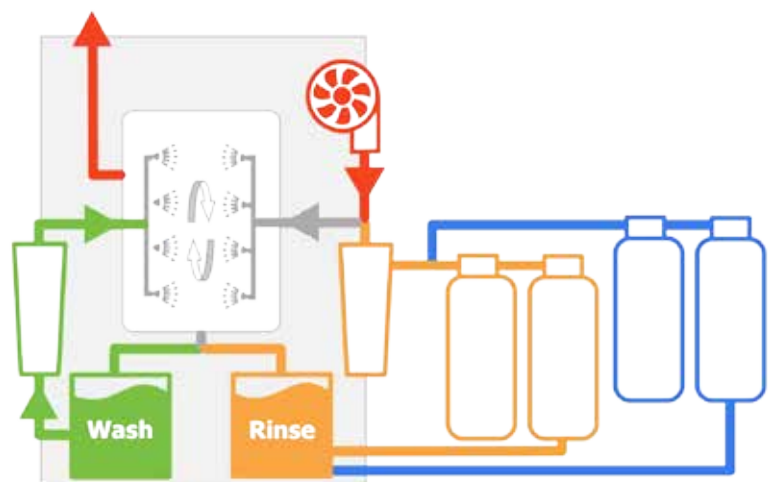
RINSE CONFIGURATION

- ◆ Easily connected to water supply and drain
- ◆ External filter carts with 25l chemical filters
- ◆ Double rinse filtration (MiniSWASH III)

MiniSWASH II

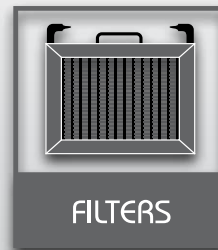


MiniSWASH III





- P** Small Footprint
- P** Multi Chamber System
- P** Manual Operation
- P** Air-bubbling Wash & Rinse
- P** Air Dry
- P** Low Running Cost



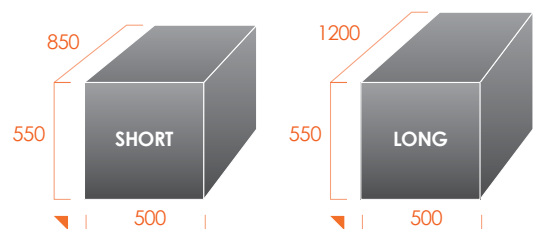
MACHINE TYPE

- ◆ FluxCLEAN Wash + Rinse + Air Dry

Solder pallets, Filters, Condensation traps, Coolers

CHAMBER CONFIGURATION

- ◆ Polypropylene baths WASH – RINSE – AIR DRY
- ◆ Air-Under-Immersion agitation - bubbling process in washing and rinsing baths

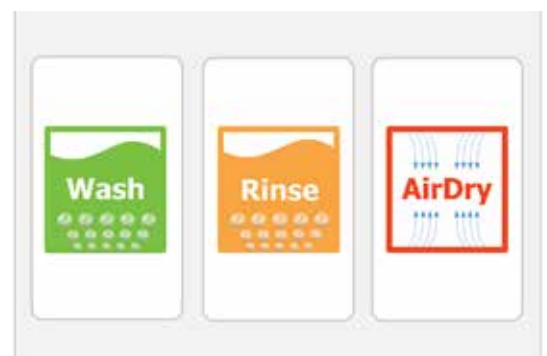


CLAMPING OPTIONS

- ◆ Three individual chambers equipped with stainless steel holders.



TANK CONFIGURATION



UNIQUE FEATURES OF OUR SYSTEMS



- ◆ Vertical spray bars
- ◆ Linear movement
- ◆ The highest orthogonal spray impact
- ◆ Balanced spray
- ◆ No shadows
- ◆ No blind corners
- ◆ No stencil bending
- ◆ Best for low stand-off components



- ◆ Closed loop wash system
- ◆ Instant filtration
- ◆ Fully separated processes
- ◆ No drain after cycle needed
- ◆ Low drag over
- ◆ Low liquid consumption



- ◆ Vertical spray bars
- ◆ Synchronized rotation
- ◆ Constant speed
- ◆ Orthogonal spray impact
- ◆ No stencil bending
- ◆ No shadows
- ◆ Mitigated blind corners



- ◆ Closed loop rinse system
- ◆ Continuous water regeneration
- ◆ Filtration by Carbon and Mixedbed
- ◆ Cleanliness control by resistivity
- ◆ Short rinse time



- ◆ Horizontal spray bars
- ◆ Parts swing between bars
- ◆ Tangent spray impact
- ◆ Uniform cleaning of entire area
- ◆ High volume cleaning



- ◆ Online concentration measuring
- ◆ Dosing from concentrate
- ◆ Automatic concentration adjustment
- ◆ Automatic care of tank level
- ◆ Stable chemical process
- ◆ Operator influence eliminated



- ◆ Vertical heated air knife
- ◆ Linear movement or rotation
- ◆ Orthogonal blow-off effect
- ◆ Constant speed
- ◆ No stencil bending
- ◆ Rapid drying of complex parts



- ◆ Data logging of all parameters
- ◆ 2D code reader
- ◆ LAN connectivity
- ◆ Full traceability of each single part



- ◆ Harmonic basket oscillation
- ◆ Uniform spray
- ◆ Accelerated wash and rinse



- ◆ Air distributed by pattern of nozzles
- ◆ Soaking of heavy contaminated parts
- ◆ Gentle alternative to ultrasonic



- ◆ Heat exchanger
- ◆ High airflow drying
- ◆ Rapid drying of complex parts



- ◆ Short initial pre-rinse
- ◆ Minimising cross contamination
- ◆ Prolongs chemical filters lifetime



CLEANING MACHINES OVERVIEW

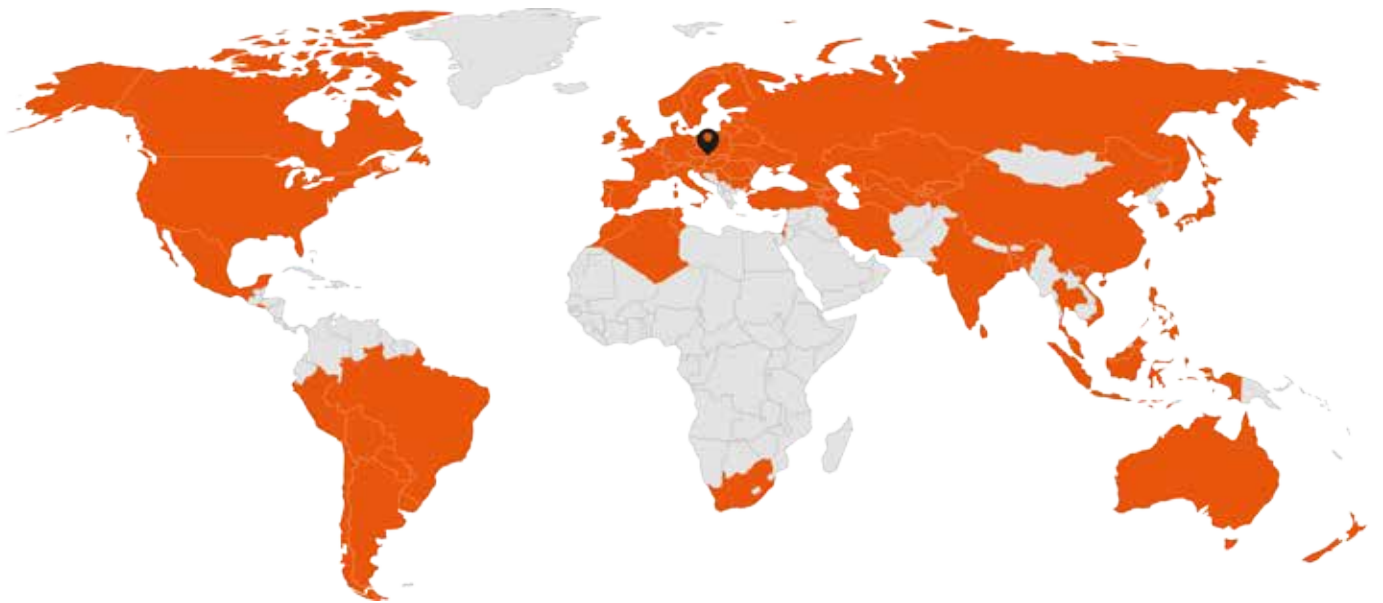
	HyperSWASH		HyperCLEAN
	Twingo	Combo	
Usable chamber size: W x L x H (mm) (W-left/right, L-front/back, H-height)	2x 890 x 80 x 850	2x 890 x 315 x 300 or 3x 890 x 315 x 170	780 x 1200 x 810
Usable space for standard clamping: W x L x H (mm) (W-left/right, L-front/back, H-height)	2x 740 x 50 x 695	2x 788 x 278 x 300 or 3x 788 x 278 x 165	700 x 700 x 700 or 2x 700 x 700 x 300 or 700 x 1000 x 700
PCBA, HDI, DCB, BGA, PoP, SiP, CSP, BTC, QFN, MELF hybrids, etc.	✓	✓	✗
Eurocards pcs/cycle (100 x 160 mm)	40	112 / 168	✗
Cycle time/min	20 - 40	20 - 40	✗
Metal & plastic stencils (paste, glue)	✓	✗	✗
Stencils/pcs/cycle	2	✗	✗
Cycle time/min	7	✗	✗
Maintenance parts from soldering process (solder pallets, filters, carriers, etc.)	✗	✗	✓
Solder pallets/pcs/cycle 500 x 500 x 40 mm (other sizes optional)	✗	✗	11 - 22
Cycle time/min	✗	✗	30 - 40
Cleaning agent volume (RtU)	80 l	80 l	110 l
Max cleaning temperature	60 °C	60 °C	60 °C
Max rinsing temperature	40 °C	40 °C	40 °C
Max drying temperature	110 °C	110 °C	110 °C
Machine dimensions W x L x H (mm) (Height with open door)	2010 x 2225 x 2615	2010 x 2225 x 2615	1700 x 3200 x 2500
Machine weight without liquid	1000 kg	1000 kg	1200 kg

SuperSWASH		CompaCLEAN	MiniSWASH	FluxCLEAN
Single	Twingo			
835 x 80 x 815 or 835x150x815	2x 835 x 50 x 740	480 x 500 x 500	810 x 60 x 740	500 x 850 x 550 or 500 x 1200 x 550
740 x 80 x 772 or 740 x 150 x 772	2x 740 x 50 x 695	430 x 490 x 500 or 430 x 490 x 2x 200	740 x 60 x 695	500 x 850 x 550 or 500 x 1200 x 550
✓	✓	✓	✓	✗
20	40	140	20	✗
20 - 40	20 - 40	30 - 60	20 - 40	✗
✓	✓	✗	✓	✗
1	2	✗	1	✗
7	7	✗	10	✗
✗	✗	✓	✗	✓
✗	✗	6	✗	up to 4
✗	✗	20 - 40	✗	40
80 l / 57 l (II / III)	80 l / 57 l (II / III)	71 l	62 l	300 l
60 °C	60 °C	60 °C	60 °C	ambient
40 °C	40 °C	40 °C	40 °C	ambient
110 °C *	110 °C *	110 °C	90 °C	ambient
1700 x 1500 x 2450	1700 x 1500 x 2450	940 x 1700 x 2140	1600 x 800/ 1400 x 1200 (1600)	1800x1150/1500x1100
570 - 630 kg	570 - 630 kg	455 - 485 kg	250 - 450 kg	170 - 210 kg





GLOBAL SUPPORT | WORLDWIDE REPRESENTATION



Think global, act local.

That is why we work with distributors and representatives. We support and provide our colleagues in many countries worldwide not only with technical information about machine details, but also with highly-valued knowledge of the whole cleaning process.

We can help you to choose the optimal cleaning solution and verify it by trials.

We supply spare parts and consumables globally as well as provide service and consulting.

www.pbt-works.com



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