MECHANICAL
STENCILS
DCBs
PCBA
SQUEEGEES
PALLETs
PUMPPRINTs
MECHANICAL
FILTERs
www.pbt-works.com
PROVIDING PRODUCT RELIABILITY SINCE 1992

WHY...
- clean electronics?
  To avoid potential failures

WHAT...
- is the danger?
  Electrochemical corrosion

BECAUSE...
- cleaning increases your product reliability & value
  It is becoming standardised manufacturing step

DO...
- consult your process
  Match cleaning agent and flux optimally

ABOUT PBT WORKS
- Established in 1992
- More than 800 installations worldwide
- Over 60 employees
- 2500 m² of company facility
- ISO 9001 and ISO 14001 certification for production and design
- Extensive experience with most challenging cleaning projects
- State-of-art cleaning evaluation test & process recommendation
- Collaboration with world class providers of cleaning chemicals
- Close collaboration with universities and research institutes
- Own design team converts research ideas into the most up-to-date equipment
- Complete in-house mechanical, hardware and software design
- Flexibility to meet specific customer requirements
- Global sales and service network of over 50 partner companies

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

- Vertical spray bars
- Linear movement or rotation
- Constant speed
- Orthogonal blow-off effect
- Uniform cleaning of entire area
- High volume cleaning

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

- Heated chamber
- Reduced pressure
- Boiling point at 85°C
- Accelerated drying
- Dry gaps under components
- Dry open components

- Double sided ultrasonic
- 40 kHz to 160 kHz
- Automatic frequency sweep
- Amplitude power control
- Gentle to sensitive components

- Patented double flow
- Primary flow in pump loop
- Secondary vortex in the chamber
- Uniform cleaning of entire batch

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

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

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

- Data logging of all parameters
- Bar code reader
- LAN connectivity
- Full traceability of each single part

- Fully automatic transloader
- Any sequence of processes
- Unique lid handling
- Basket buffers
- Barcode control
- High throughput
- Operator influence eliminated

- Harmonic basket oscillation
- Uniform exposure of ultrasonic
- Accelerated wash and rinse

- Air distributed by pattern of nozzles
- Soaking of heavy contaminated parts
- Gentle alternative to ultrasonic
# CLEANING MACHINES OVERVIEW

<table>
<thead>
<tr>
<th></th>
<th>SuperSWASH</th>
<th>HyperSWASH</th>
<th>MiniSWASH</th>
<th>CompaCLEAN</th>
<th>UniCLEAN</th>
<th>FluxCLEAN T</th>
<th>FluxCLEAN SD/HD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Usable space of chamber: W x L x H (mm)</strong> (W-left/right, L-front/back, H-height) Including fixtures and clamping</td>
<td>835 x 80/150 x 816</td>
<td>835 x 50 x 740</td>
<td>835 x 50 x 740</td>
<td>890 x 125 x 850</td>
<td>890 x 60 x 850</td>
<td>890 x 170 x 850</td>
<td>890 x 170 x 850</td>
</tr>
<tr>
<td><strong>PCBA, HDI, DCH, BGA, PoP, SiP, CSP, BTC, QFN, MELF hybrids, etc.</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Eurocards pcs/cycle</strong> (100x160mm)</td>
<td>20</td>
<td>40</td>
<td>20</td>
<td>40</td>
<td>168</td>
<td>20</td>
<td>140</td>
</tr>
<tr>
<td><strong>Cycle time/min</strong></td>
<td>20 - 40</td>
<td>20 - 40</td>
<td>20 - 40</td>
<td>20 - 40</td>
<td>20 - 40</td>
<td>20 - 40</td>
<td>30 - 60</td>
</tr>
<tr>
<td><strong>Metal &amp; plastic stencils (paste, glue)</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Stencils/pcs/cycle</strong></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>X</td>
<td>1</td>
<td>X</td>
</tr>
<tr>
<td><strong>Cycle time/min</strong></td>
<td>7 - 10</td>
<td>7 - 10</td>
<td>7 - 10</td>
<td>7 - 10</td>
<td>X</td>
<td>10 - 15</td>
<td>X</td>
</tr>
<tr>
<td><strong>Maintenance parts from soldering process (solder pallets, filters, carriers, etc.)</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Solder pallets/pcs/cycle</strong> 500x500x40mm (other sizes optional)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Cycle time/min</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>6</td>
<td>X</td>
</tr>
<tr>
<td><strong>Cycle time/min</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>20-40</td>
<td>X</td>
</tr>
<tr>
<td><strong>Cleaning agent volume (RtU)</strong></td>
<td>66 l</td>
<td>66 l</td>
<td>80 l</td>
<td>80 l</td>
<td>80 l</td>
<td>70 l</td>
<td>80 l</td>
</tr>
<tr>
<td><strong>Max cleaning temperature</strong></td>
<td>60 °C</td>
<td>60 °C</td>
<td>60 °C</td>
<td>60 °C</td>
<td>60 °C</td>
<td>60 °C</td>
<td>60 °C</td>
</tr>
<tr>
<td><strong>Max rinsing temperature</strong></td>
<td>40 °C</td>
<td>40 °C</td>
<td>40 °C</td>
<td>40 °C</td>
<td>40 °C</td>
<td>40 °C</td>
<td>40 °C</td>
</tr>
<tr>
<td><strong>Max drying temperature</strong></td>
<td>110 °C</td>
<td>110 °C</td>
<td>110 °C</td>
<td>110 °C</td>
<td>90 °C</td>
<td>110 °C</td>
<td>110 °C</td>
</tr>
<tr>
<td><strong>Machine dimensions W x L x H (mm)</strong> (W-left/right, L-front/back, H-height)</td>
<td>1700 x 1300-1500 x 1735</td>
<td>1700 x 1300-1500 x 1735</td>
<td>1900 x 1500 x 2100</td>
<td>1900 x 1500 x 2100</td>
<td>1900 x 1500 x 2100</td>
<td>1600x800x1200 (L, II)</td>
<td>1600x1400x1200 (optional 1500) (III)</td>
</tr>
<tr>
<td><strong>Max drying temperature</strong></td>
<td>1700 x 2045 x 2500</td>
<td>2450 x 1200-1650 x 2370-2700</td>
<td>760 x 730 x 1350 / 2200 x 804 x 1263</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine weight without liquid</strong></td>
<td>520-630 kg</td>
<td>520-630 kg</td>
<td>1000 kg</td>
<td>1000 kg</td>
<td>1000 kg</td>
<td>220-450 kg</td>
<td>455-485 kg</td>
</tr>
<tr>
<td><strong>Actual configuration and features may vary depending on design and innovation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Actual configuration and features may vary depending on design and innovation.
**CAPACITY AND SIZE OPTIONS**
- SINGLE – single frame
- TWINGO – double frame
- Modification between options in 10 minutes

**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

**VERSIONS BY APPLICATION**
- **SuperSWASH II**
  - Wash + Rinse + Drying
  - stencils, squeegees, misprints, PumpPrint™ stencils
- **SuperSWASH III**
  - Wash + Rinse I + Rinse II + Drying
  - PCBA after soldering, PCBA before coating
- **SuperSWASH IV**
  - Wash + Rinse I + Rinse II + Rinse III + Drying
  - power electronics, prior to wire bonding

**FILTRATION OPTIONS**
- First rinse filtration fully separated from second rinse filtration
- Integrated 16l chemical filters
- External carts with up to 39l of mixbed and 39l active carbon
- Cascade filtration regularly refills fresh DI water from external source to second rinse tank
- External source regularly refills fresh DI water into first rinse tank

**CLEANING APPLICATION**
- Defluxing - removing soldering residues after reflow
- Cleaning contamination from handling and board manufacturing, removing FOD
- High density electronic assemblies with low standoff components like BGA, CSP, BTC, QFN, MELF, small chips
- Cleaning of power electronics
- Electronic assemblies requiring extra short process time
- Second side misprints on complex assemblies
- Cleaning before conformal coating and wire bonding
- High volume stencil cleaning

**UNIQUE FEATURES**
- Fully automatic spray-in-air closed loop zero drain system
- Double capacity configuration TWINGO
- Linear direct spray for equal washing of entire surface
- Compatible with wide range of chemistry from various suppliers
- 100% filtration of entire spray volume
- Optional triple rinse
- Hot air knife direct dry technology
- Double flow exhaust fan or exhaust flap - system controlled
- Illuminated glass door chamber for visual process control
- All process steps with up to 5 substeps for highest flexibility
- Wide range of standard and customized PCB fixtures
- Clamping for all types of stencils
- Anti-collision sensor
- Up to 3 fully separated liquid loops
- Low consumption of chemicals and water
- Proportional level sensors in all processes
- Outstanding options of water utilization

**CONTROL FEATURES**
- Intuitive touchscreen interface with Windows OS
- Adaptive rinse water quality control
- Dosing of up to 2 additives
- AAD Automatic adaptive dosing with concentration sensor
- ZESTRON® EYE or KYZEN ANALYST™, integrated in machine OS
- Complete datalogging, LAN connectivity
- Bar code traceability
- Personalised password security
- Multi language selection
UNIVERSAL CLEANING SOLUTION IN ONE SYSTEM

CLEANING APPLICATION
- Defluxing – removing all kind of solder residues
- Cleaning of micromechanical components
- Cleaning contamination from handling and board manufacturing, removing FOD
- Highly populated electronic assemblies with low standoff components such as BGA, CSP, BTC, QFN, MELF
- Cleaning of power electronics
- Electronic assemblies requiring extra short process time
- Second side misprints on complex assemblies
- Cleaning before conformal coating and wire bonding

CONTROL FEATURES
- Intuitive touchscreen interface with Windows OS
- SPC for all parameters in graphical interface – trends, limits
- Adaptive rinse water quality control
- AAD Automatic adaptive cleaner dosing with concentration sensor ZESTRON® EYE, or KYZEN ANALYST™, integrated in machine OS
- Dosing of up to 2 additives
- Complete datalogging, LAN connectivity
- Bar code traceability
- Unlimited recipe library
- Personalised password security
- Multi language selection

UNIQUE FEATURES
- Fully automatic spray-in-air closed loop zero drain system
- Double capacity configuration TWINGO
- Multiple capacity in COMBO configuration
- Linear direct spray for equal washing of entire surface
- Compatible with wide range of cleaners from various manufacturers
- 100% filtration of entire spray volume
- Double rinse option
- Possible to use two different cleaners
- Hot air knife direct dry technology
- Illuminated glass door chamber for visual process control
- All process steps with up to 5 substeps for the highest flexibility
- Wide range of standard and customized PCB fixtures
- Clamping for all types of stencils
- 3 fully separated liquid loops with possible cascade
- Low consumption of chemicals and water
- Proportional level sensors in all processes
- Outstanding options of water utilization

CAPACITY AND SIZE OPTIONS
- SINGLE – single frame
- TWINGO – double frame
- COMBO – multi-level basket
- Modification between options in 10 minutes
- Custom designed nozzle system available

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

VERSIONS BY APPLICATION
- HyperSWASH Wash + Rinse I + Rinse II + Drying
- PCBA after soldering, PCBA for coating, power electronics, micromechanics

FILTRATION OPTIONS
- Zero drain concept - close loop, cascade or open loop can be set by software only
- 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

USABLE SPACE OF CHAMBER
- Allowing fixture and clamping

Baskets
- Horizontal bars
- DCB Holder
- Stencils
- Multi-level basket
- Double frame

USABLE SPACE OF CHAMBER
- Including fixture and clamping

SINGLE
- View from operator
- 215 850 890
- View from operator
- 215 850 890
- View from operator
- 215 850 890
- View from operator

TWINGO
- View from operator
- 60 850 890
- View from operator
- 60 850 890
- View from operator
- 60 850 890
- View from operator

COMBO
- View from operator
- 315 170 170 170 170
- View from operator
- 315 170 170 170 170
- View from operator
- 315 170 170 170 170
- View from operator
**CAPACITY AND SIZE OPTIONS**
- SINGLE – single frame
- 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

**VERSIONS BY APPLICATION**
- MiniSWASH I – Wash + Drying
- MiniSWASH II – Wash + Rinse + Drying
- MiniSWASH III – Wash + Double Rinse + Drying

**PRICE-EFFECTIVE, POWERFUL, RELIABLE SOLUTION**

**CLEANING APPLICATION**
- Cleaning solder paste from any type of stencils, screens and printer squeegees
- Removing SMT glue residues from any type of stencils, screens or PumpPrint stencils
- Defluxing, removing all kinds of soldering residues from high density PCBs
- Cleaning contamination from handling and board manufacturing
- Cleaning second side misprints on complex assemblies

**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

**FILTRATION OPTIONS**
- Easily connected to water supply and drain
- External filter carts with up to 25l of mixbed and 25l active carbon
- Optional double rinse

**CONTROL FEATURES**
- Intuitive touchscreen interface
- PLC control
- Full barcode traceability, LAN connectivity
- Unlimited recipe library
- Adaptive rinse process control for stable quality
- Multi language selection

**UNIQUE FEATURES**
- Fully automatic spray-in-air closed loop zero drain system
- Synchronous, double-sided, constant speed motor-driven nozzle manifold
- Hot air knife direct dry technology
- Anti-collision system
- Synchronized motion check
- Compatible with wide range of chemistry from various suppliers
- Heating in cleaning medium, optionally in rinsing
- Clamping for all types of stencils and squeegees
- Advanced adjustable frame fixing system
- Wide range of PCB fixture
- Two fully separated liquid loops, up to 2-step rinsing
- Low consumption of chemicals and water
- Outstanding options of water utilization

**CONTROL FEATURES**
- Intuitive touchscreen interface
- PLC control
- Full barcode traceability, LAN connectivity
- Unlimited recipe library
- Adaptive rinse process control for stable quality
- Multi language selection

**FILTRATION OPTIONS**
- Easily connected to water supply and drain
- External filter carts with up to 25l of mixbed and 25l active carbon
- Optional double rinse
HIGH CAPACITY AND LOW PROCESS COST

CLEANING APPLICATION

- Defluxing of good or moderately soluble solder residues
- Removing contamination from handling and board manufacturing
- Removing FOD
- Second side misprints on complex assemblies
- Cleaning before conformal coating
- Cleaning soldering pallets
- Fine degreasing of mechanical parts

CAPACITY AND SIZE OPTIONS

- SINGLE – single rack
- TWINGO – double rack

CLAMPING OPTIONS

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

VERSIONS BY APPLICATION

- CompaCLEAN II: Wash + Rinse I + Drying
- CompaCLEAN III: Wash + Rinse I + Rinse II + Drying

FILTRATION OPTIONS

- Integrated 16l chemical filters keep the machine footprint as small as possible
- First rinse filtration fully separated from second rinse filtration
- External carts with up to 39l of mixed and 39l of active carbon
- Cascade filtration regularly refills fresh DI water from external source to second rinse tank
- External source regularly refills fresh DI water into first rinse tank

UNIQUE FEATURES

- Fully automatic spray-in-air closed loop zero drain system
- High volume batch size
- Double capacity rack available
- Uniform spray coverage with high stroke oscillating rack
- Fixed nozzle system
- Powerful hot air dryer
- Cascade filtration
- Compatible with wide range of chemistry
- 100% filtration of entire spray volume
- Double rinse option
- Optional illuminated glass door chamber for visual process control
- Up to 3 fully separated liquid loops
- Outstanding options of water utilization

CONTROL FEATURES

- Intuitive touchscreen interface with Windows OS
- Simple programming
- Complete datalogging and optional bar code traceability, LAN connectivity
- Dosing of up to 2 additives
- Automatic adaptive cleaner dosing with concentration sensor
- ZESTRON® EYE or KYzen ANALYST™ integrated in machine OS
- Adaptive rinse water quality control by cleanliness threshold
- Week program with automatic start
- Personalised password security
- Multi language selection

USABLE SPACE OF CHAMBER

Including fixtures and clamping

- SINGLE
- TWINGO

PCBA Rack
Double PCBA Rack
Horizontal bars
Combination
Pallet rack

Oscillating Basket Fixed Spray bars

CompaCLEAN II
Wash + Rinse I + Drying
soldering pallets

CompaCLEAN III
Wash + Rinse I + Rinse II + Drying
PCBA after soldering, PCBA before coating
**EFFECTIVE AND HIGH CAPACITY PCBA CLEANING**

**CLEANING APPLICATION**
- Water-based process
- Semi-aqua process
- Compatible with wide range of cleaning chemistry
- Cleaning of complex PCBA with low standoff components BGA, CSP, QFN, small chips
- Cleaning of any kinds of solder residues, even hardly soluble
- Cleaning before wire bonding
- Cleaning active components before packaging
- Fine cleaning of mechanical parts

**CAPACITY AND SIZE VERSIONS**
- 4-6 chambers according to configuration
- Any combination of Wash, Rinse, Dry

**CLAMPING OPTIONS**
- Wide range of standard fixtures and adaptors for any types of electronic assemblies
- Customization is available for any clamping fixtures
- Cleaning in SMT magazine racks

**APPLICATION MODEL**
- Ultrasonic Wash + Basket oscillation + Rinse I + Rinse II + Vacuum drying
- Spray under immersion + Ultrasonic + Basket oscillation + Chemical stop SIA + Rinse I + Rinse II + 2x Vacuum drying

**UNIQUE FEATURES**
- Combination of different agitation methods
- Cleaning capacity comparable with in-line mesh belt systems
- Configuration according to process and capacity needs
- Up to 6 chambers for various combinations of Wash, Rinse, Dry
- 5-axis robotic transfer for baskets and chamber lids
- Input / Output conveyor buffers
- Low consumption of energy and liquids
- Small footprint
- Zero drain system
- DI water reclaim plant integrated
- Highly efficient vacuum drying
- Designed especially for electronic applications
- Fully ESD complying, cleanroom compatible
- Various fixtures and clamping

**CONTROL FEATURES**
- WINDOWS OS with 21.5” touchscreen interface
- Complete datalogging, process traceability and optional bar code control
- Adaptive rinse water quality control
- Automatic adaptive dosing with digital concentration sensor ZESTRON® EYE or KYZEN ANALYST™
- LAN connectivity and data communication
- Personalised password protection in three access levels

**USABLE SPACE OF CHAMBER**

**VIEW FROM OPERATOR**
- Single rack
- Double rack
- Magazine rack
- Customized rack

**UniCLEAN XLS**
- 310 x 400

**UniCLEAN XLL**
- 310 x 430
- 310 x 400

**UniCLEAN XXL**
- 310 x 600
- 310 x 430

[Diagram showing different chamber configurations and cleaning processes]
CUSTOMIZED SOLUTIONS

- Do you have a need for a customized solution based on one of our cleaning machines?

- PBT Works is available to provide custom solutions to assist you with your special projects.

- PBT Works is committed to deliver world class, high performance and reliable products and services. Through innovative engineering, design and a solid commitment to customer satisfaction, we can create truly effective customized solutions in various industrial fields.

MODULECLEAN ROBOT
- Ultrasonic, Spray in Air, Immersion Spray, Vacuum Dry

UNICLEAN MEOPTA
- Ultrasonic, Immersion Spray, In-Line Dryer

UNICLEAN SUI
- Immersion Spray

UNICLEAN WF
- Water Free Immersion Spray

UNICLEAN MEOPTA
UNICLEAN SUI
UNICLEAN WF

HIGH CAPACITY AUTOMATIC CLEANING SYSTEM

CLEANING APPLICATION
- Solder pallets, condensation traps and other maintenance cleaning
- Mechanical parts cleaning
- High throughput

UNIQUE FEATURES
- Unique spray under immersion washing process
- Separate filtration pump
- Heated spray-in-air rinsing
- Fully automatic operation system
- Pull-out trolley for easy transport of baskets
- Comfortable and fast handling

CONTROL SYSTEM
- PLC control system with touch screen
- Week program for automatic start-up/shut down
- Three level password protection

CUSTOMIZED SOLUTIONS

MODULECLEAN ROBOT
- Ultrasonic, Spray in Air, Immersion Spray, Vacuum Dry

UNICLEAN MEOPTA
- Ultrasonic, Immersion Spray, In-Line Dryer

UNICLEAN SUI
- Immersion Spray

UNICLEAN WF
- Water Free Immersion Spray

UNICLEAN MEOPTA
UNICLEAN SUI
UNICLEAN WF

UNICLEAN MEOPTA
UNICLEAN SUI
UNICLEAN WF

UNIQUE FEATURES
- FLUXCLEAN SD (standard duty) - Polypropylene baths & metal frame
- FLUXCLEAN HD (heavy duty) - stainless steel
- Cleaning, rinsing and drying baths
- Air In Immersion (bubbling) process in cleaning and rinsing baths
- Baths dimension and additional accessories can be modified upon customer request
INTENDED FOR:
- Process qualification - flux/cleaner matching
- Process changes verification
- Machine capability studies
- Process capability studies
- Process optimisation

GLASS-CERAMIC TEST COUPON FOR CLEANING RESULTS EVALUATION
- Transparent - easy evaluation of residual under chips thanks to glass board
- Stand-off 60 ±5µm
- 100x100 mm glass board
- Enables to interrupt, evaluate and continue in testing
- Reusable – up to 20 cycles
- Chips mounted by patented process

VISUAL EVALUATION
- Easy and reliable evaluation by magnification only

AUTOMATIC EVALUATION BY 2D SPI
- VERIMA 2D SPI
- Adapted for substrate evaluation
- Numeric depiction
- Accurate results

PBT WORKS MACHINES WORK WITH VARIOUS CLEANING AGENTS
- Water based solvents
- Semi-aqua solvents
- Saponifiers
- Detergents

Majority of cleaning processes require dedicated, carefully selected cleaning agent. Cleaning applications demand perfect balance between chemical action and fluid mechanics.

PBT Works cooperates with leading global manufacturers of cleaning chemicals. Our machines are available for trials in several technical centers around the world. Up to date machine design knowledge and latest developments in cleaning chemicals are regularly shared between our engineers and partners to ensure optimal machine-chemical compatibility for the best cleaning results.

Cleaning agents today are sophisticated blends of many substances carrying out the challenging task of diluting wide range of organic residues while not attacking another group of very similar organic materials on assemblies and components.

PBT Works thoroughly tests durability of all potentially sensitive machine components using partners’ cleaning agents to ensure long machine lifespan.
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.