



Industrial Cleaning Systems  
and Surface Treatments



Brought to you by



**NATIONAL**



- Cleaning plants line
- MODIFIED ALCOHOL
- CHLORINATED
- HYDROCARBONS



## Industrial Cleaning Systems and Surface Treatments

### Why is cleaning required?

Today, more often than not, we see that the manufacturing industry requires compliant pieces and components, which means your parts should be perfectly cleaned before being released to your customer.

To ensure strict tolerances and standard safety precautions are met, contaminants present on parts leaving your shop must be removed.

By correctly cleaning your parts, you will ensure:

- The best possible product is sold to your customer
- Reliability and efficiency of your pre-proven processes
- Reduced environmental impact
- Compliance with worker safety



### Why the use of the solvent?

The market demands more and more stringent cleaning specifications for any component in production.

Current cleaning needs do not allow for any residue of contaminant on the final product.

Solvent cleaning works more efficiently than any water-based process for parts that are of complex shape.



### Market expectations

Nowadays, there are increasing demands for quality and compliance with standards such as ISO 16232, which goes hand-in-hand with a high reliability of the operating process.

**It is not a question of whether the product is clean or not, but how clean it is!**

### Responsibility

**Our systems satisfy the most demanding cleaning and stringent process requirements, and meet safety and environmental international standards** to protect both operators and environment





Our products include modified alcohol plants, water based plants, alcohol-water mixed plants and plants with chlorinated solvents. Because of our wide range of offerings, we have the ability to recommend the correct solution and the most suitable solution to satisfy the customer's production request. Each of our systems are able to satisfy the most complicated needs and the most stringent washing requirements.

Our closed circuit solvent cleaning systems are able to carry out the washing and drying treatment completely under vacuum. All of our systems meet the most current standards: national and international, to protect operators and the environment they work in.



### **MODIFIED ALCOHOL** Cleaning Plants

We use solvents made of alcohol derivative (modified alcohols or better alcohopropanol), which have a degreasing power, similar to chlorinated solvents, which are specifically used when the demand calls for a strong degreasing phase, certainly superior to hydrocarbons (similar in chemical-physical characteristics but different in their management).

This options offers low toxicity and eco-toxicity as they evaporate completely without leaving residues on the pieces. They are non-corrosive and are able to remove water from metal surfaces.



### **CHLORINATED** Cleaning Systems

Chlorinated solvent washing systems have a completely hermetic circuit operation and work with super-stabilized perchlorethylene which has a high solvent power and is very stable.

Perchlorethylene is compatible with most metals, particularly those that are easily oxidized such as aluminum, stainless steel, magnesium, zinc and alloys such as brass, etc.



### **HYDROCARBON** Cleaning Systems

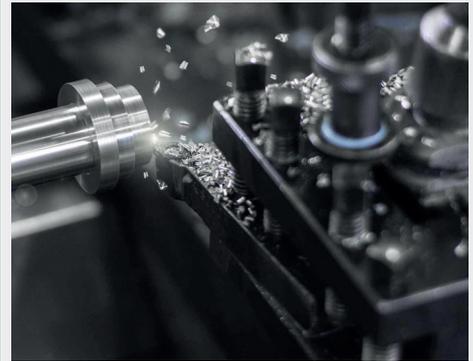
We use hydrocarbon solvents (isoparaffins) class AIII, which have a degreasing power lower than the chlorinated solvents (i.e. perchloroethylene). The benefit of these is that they pose the lowest environmental impact due to the non-belonging to any categories regulated by the VOC regulation on emissions.

Example: The cleaning in finale stage of bearings, the application of this type of solvent is then compulsory, considering the necessary slight residual greasiness left by the solvent itself on the parts.





## APPLICATIONS



### PRECISION CLEANING

- Mechanical parts
- Aerospace
- Automotive
- Jewelry



### PRECISION OPTICS

- Lenses, Eyewear
- Mirrors, Glass
- Prisms
- Masks



### PHOTOVOLTAIC

- Electronic and industrial plastics
- Glass products
- Photovoltaic Cells & Wafers
- Fingerprints removal



### MEDICAL INDUSTRY

- Cannula
- Orthopedic Implants
- Instruments and Tools
- Spine Implants



### COATING INDUSTRY

- PVD - PACVD
- Decorative
- Carbide Tools
- Automotive Parts



### VARIOUS APPLICATIONS

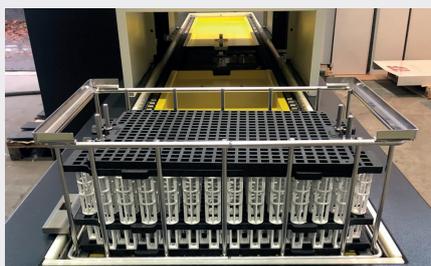
- Difficult/ Challenging Parts to Clean
- Aero Engine components
- Gas Turbine components
- Injection system components





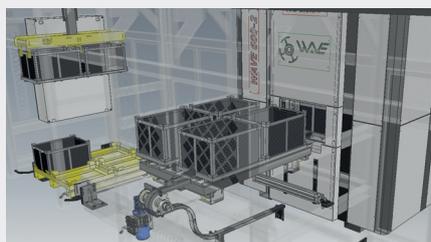
## REMOVAL

Total removal of all types of pollutants from treated (metallic and non-metallic) parts, simple or morphologically complex, equipped with blind and threaded holes, tapped or rolled, planar or with recesses or cavities, up to the microstructure of the sintered material components. We remove organic and non organic, polar and non-polar contaminants and impurities such as: oil (whole and emulsions), lapping oils, polishing pastes, waxes, shavings, powders and particulates, greases, footprints, earth and foundry sands, salts, etc.



## CLEANING

Depending on the type of solvent used and the proposed cycle, our systems can clean: AVP, AVZ, Steel, Stainless Steel, Cast Iron, Aluminum, Brass, Copper, Ergal, Plastic materials.



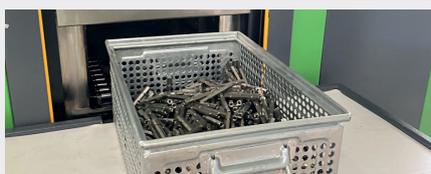
## BASKETS HANDLING

The baskets, once introduced into the treatment chamber, either manually by the operator or in automatic mode by a device positioned in front of the working chamber, can be moved or be static based on the type of program inserted. It also takes into consideration the delicacy of the pieces themselves.

The basket, or in the case of systems with multiple baskets, in the working chamber can be:

- in rotation on the basket axis
- in tilting with controlled inclination
- made static, with no movement

Closing the basket will prevent the pieces from coming out during rotation. The system can also be configured for automatic closing of the basket in the work chamber, removing manual operator interference.



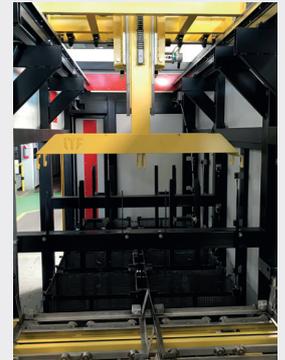
## BENEFITS OF THE PROCESS

- Vacuum operation of each part of the system
- **Complete integration possibilities within Industry 4.0**
- Continuous water separation, with the possibility of continuous automatic discharge
- Oil separation from the solvent, with the possibility of continuous automatic discharge
- Sludge stripping distiller
- Vacuum drying
- Ultrasonic transducers for cavitation in immersion
- Double washing liquid storage tank
- Vacuum pumps
- Total solvent filtration at each cycle
- Chip drying and deodorizing before emptying by the operator
- Hermetic washing / liquid loading / unloading system
- Chip drying and deodorizing before opening/ cleaning by the operator
- Siemens PLC for managing all the operating parameters of the plant cycle
- Siemens HMI with continuous indication of system status
- Remote connection for ethernet remote assistance





**MULTI-SOLVENT TECHNOLOGY**



**Energy  
Efficient**





Each of our machines are constructed in AISI 304 stainless steel (DIN AISI 1.403), which allows you to reach high vacuum rates to while avoiding stressing the solvent and allowing the pieces to dry very quickly.

The entire system cycle, spray stage, immersion (with or without ultrasound), solvent vapor and drying, takes place under vacuum: **ensuring the hermetic seal of the system.**

Each washing stage is carried out with clean liquid thanks to the **double distiller** that guarantees ready and clean solvent even for reduced cycle times.

This turns into a **continuous washing process** ensuring a **high and consistent washing quality.**

Vacuum drying and a hermetically sealed environment avoid contamination of the pieces by the particles present in the air.

**The operator will not come into contact with the solvent even during maintenance.** All the operations of loading and unloading of the solvent, of drainage take place automatically and the cleaning of the filters takes place with the preventive deodorization.

Our construction method is different from other products on the market as the construction of **our work chamber is integrated into the system body.**

This has considerable advantages:

- no external tank
- no external piping
- all connections are made internally the machine body
- no heat dissipation
- guarantee of the seal of the vacuum over time

Through the integrated module construction, the solvent vapors generated by the distiller are used to **supply the chamber with thermal energy**, creating a **continuous and never interrupted distillation.**

This reduces the thermal energy used to restore the distillation regime, significantly reducing electricity consumption and obtaining a greater quantity of vapors for the final phase of the process and for their condensation.

The displacement and relocation to the customer's factory after the pre-testing tests in our factory guarantee that what is found in the pre-testing is actually what was expected and required in the final testing and production start-up phase.



## DATA SHEET

model	baskets num.	basket dimensions		total load dimensions		load weight		cycles/hr
		mm	inches	mm	inches	Kg	lb	
WAVE 450 - 1	1	300 x 450 x 200 h	11,8 x 17,7 x 7,9 h	300 x 450 x 200 h	11,8 x 17,7 x 7,9 h	75	165	6 - 8
WAVE 450 - 2	2	300 x 450 x 200 h	11,8 x 17,7 x 7,9 h	450 x 600 x 200 h	17,7 x 23,6 x 7,9 h	150	330	6 - 8
WAVE 450 - 3	3	300 x 450 x 200 h	11,8 x 17,7 x 7,9 h	450 x 900 x 200 h	17,7 x 35,43 x 7,9 h	225	500	5 - 7
WAVE 450 - 4	4	300 x 450 x 200 h	11,8 x 17,7 x 7,9 h	450 x 1200 x 200 h	17,7 x 47,25 x 7,9 h	300	660	4 - 6
WAVE 600 - 1	1	470 x 620 x 400 h	18,5 x 24,4 x 15,75 h	470 x 620 x 400 h	18,5 x 24,4 x 15,75 h	250	550	4 - 6
WAVE 600 - 2	2	470 x 620 x 400 h	18,5 x 24,4 x 15,75 h	470 x 1240 x 400 h	18,5 x 48,8 x 15,75 h	400	900	3 - 4
WAVE 900 - 1	1	600 x 900 x 600 h	23,6 x 35,43 x 23,6 h	600 x 900 x 600 h	23,6 x 35,43 x 23,6 h	600	1300	3 - 4
WAVE 1000 - 1	1	600 x 1000 x 750 h	23,6 x 39,37 x 29,5 h	600 x 1000 x 750 h	23,6 x 39,37 x 29,5 h	700	1500	3
WAVE 1200 - 1	1	800 x 1200 x 800 h	31,5 x 47,25 x 31,5 h	800 x 1200 x 800 h	31,5 x 47,25 x 31,54 h	1000	2200	2 - 3
WAVE 2100 - 1	1	850 x 2100 x 850 h	33,46 x 82,68 x 33,46 h	850 x 2100 x 850 h	33,46 x 82,68 x 33,46 h	2000	4400	2

Technical data and features are subject to change without notice.





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the Difference

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