



Triton
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SURFACE TREATMENT SYSTEMS



Since the mid-2000s, the **surface treatment sector** has been undergoing crucial changes in its evolution. Nothing points more to this than washing. This process plays an essential role in industrial production cycles and lends a significant contribution to the creation of value for the final product. Since then, our specialisation and technical skills in the field of surface treatments have grown. **We are able to guarantee outstanding results that are environmentally friendly and comply with all safety standards in force for the operator.** Our strengths have always been the attention to the critical issues of the production processes, the continuous updating on the diversification and use of materials and, in particular, the availability and ability to listen to the needs of customers. We have maintained our constant commitment over time, investing in R&D activities so that we are able to offer innovative products and solutions able to meet a constantly and rapidly evolving demand. **Today TRITON is TRITON ADVANCED SEARCH.**

The specific knowledge of the characteristics of the different materials and the in-depth analysis of the pieces to be treated lead us to develop innovative solutions capable of guaranteeing results and able to support growth. technological production processes. Intelligent management: modern industry requires machines able to identify the product and automatically set the parameters, previously assigned, for that specific process. Control and traceability: thanks to the ability to continuously detect the useful data of the processes, every critical parameter is constantly controlled and the traceability of the results over time is also guaranteed thanks to the remote connection, which allows the creation of history of operating cycle log.

**“UN VIAGGIO
DI MILLE MIGLIA
COMINCIA
SEMPRE CON IL
PRIMO PASSO”**
(Lao Tzu)

Versatility and integration: single machines, complex plants, robotic or highly automated systems, with great flexibility of use, perfectly integrated into the work islands, or specifically designed to be inserted into the processing lines. Eco-friendly solutions: optimisation of the use of chemical products useful for the process, systems for reducing emissions into the atmosphere and recovering water vapour, integrated plants for the treatment process of spent liquids.



SOLUTIONS



**ROTARY TABLE
WASHING MACHINES**



**ROTARY BASKET
WASHING MACHINES**



**REVOLVER "PLANET"
WASHING MACHINES**



**ULTRASONIC
WASHING MACHINES**



**ROTARY DRUM
WASHING MACHINES**



**STEPPER MOTOR TABLE
WASHING MACHINES**



**CONVEYOR BELT
WASHING MACHINES**



**OVERHEAD CONVEYOR
WASHING MACHINES**



**ALL-IN-ONE MULTI-PURPOSE
MACHINE**



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**ROTARY
TABLE
WASHING
MACHINES**

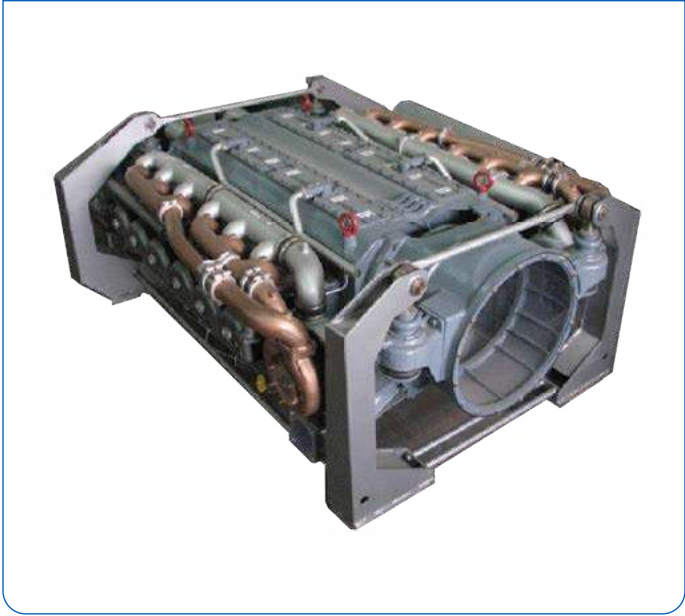


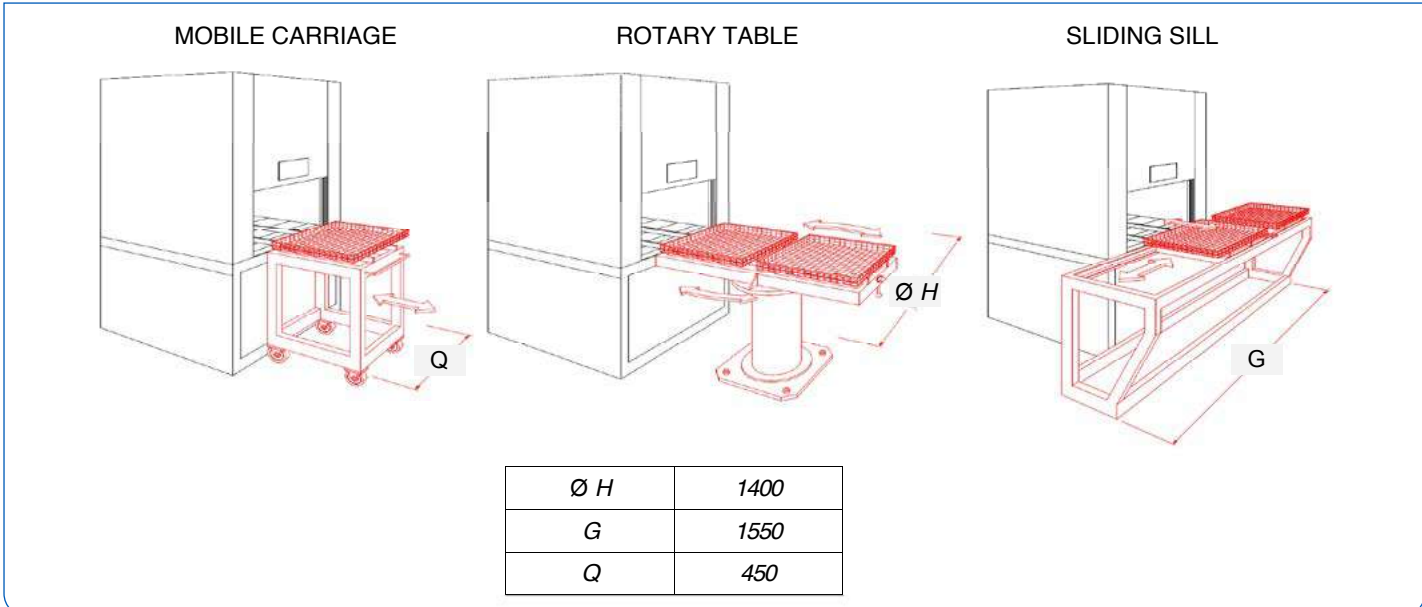


These machines, with a compact and very sturdy build, can be used in a wide array of applications given their ease of use and ability to treat pieces with considerable dimensions and weights. Treatment takes place by spraying, with the workpiece platform automatically rotated on its vertical axis, mediated streams at medium pressure "5 Bar" placed above, below and on the sides.

They are able to perform with great effectiveness articulated treatments up to 3 phases in full auto mode.

All the machines of this series are equipped with square shuttle-plate with rounded corners, with dimensions up to 1700 x 1700 mm and with capacities up to 1,000 Kg. They can be equipped with a simple fixed sill, where loading / unloading operations can be performed or alternatively for unloading during run time: wheeled sill, 2-station movable, rotating platform.







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**ROTARY
BASKET
WASHING
MACHINES**





The rotary basket cabins have been designed to be extremely versatile and flexible. Their strength lies in the ability to combine different dynamic actions in a single chamber that, combined with the possibility of turning the basket on its horizontal axis, allow high-level washing and detrucylation results They can be employed to treat pieces of any nature, even those that are complex. These machines can also treat small parts in bulk; the delicate pieces will be placed inside the basket and blocked by a lid placed at the filling level, small and non-delicate pieces will be loaded into the basket in bulk and will be free to undergo continuous agitation during the treatment; finally, if necessary, for large and heavy pieces, the rotation of the basket during the treatment phase can be excluded or limited to an alternating oscillating movement.

As mentioned, treatment can be carried out with combined principles, inside the chamber, in fact, spray phases with medium pressure (up to 20 Bar), immersion phases with hydrokinetic action, phases can be carried out separately or in sequence with ultrasound.

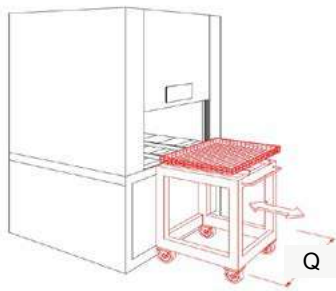
Up to 3 tanks can be treated and therefore articulated processes executed, completed by blowing, drying with hot air. PLC control allows an unlimited number of recipes to be preset, therefore the composition of the phases of the process can be customised according to the pieces to be treated.

The piece-holder baskets can have any size, the machines can be equipped with a simple fixed sill, where loading/unloading operations can be carried out manually or as an alternative to automated systems for loading and unloading with eventual management of basket holders.

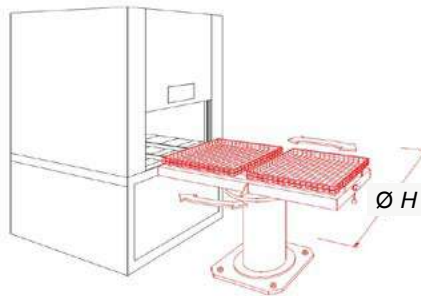




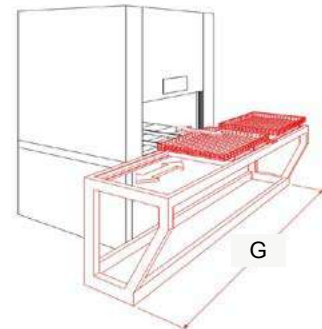
MOBILE CARRIAGE



ROTARY TABLE



SLIDING SILL



Modelli	TR8.../...	TR11.../...	TR14.../...	TR17.../...
Ø H	1900	2500	3100	3750
G	2600	3500	4400	5300
Q	500/ 800	700/ 1100	800/ 1400	1000/ 1700





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**REVOLVER
“PLANET”
WASHING
MACHINES**





After decades of stagnation in the evolution of washing systems, the solution to the needs of washing single pieces with a high production rate was born in Triton.

- Treats one piece at a time satisfying high speeds.
- Continuously moves the piece for quick cleaning and effective even with complex shapes and in the presence of shavings.
- Immersion washing with hydrokinetic action.
- Yields pieces with very low moisture residues.
- Compatible with latest generation rinse-free detergents.
- The pieces are contained in plastic cylinders to protect the delicate points; no more ruined fillets, flattened edges, dented surfaces
- Interacts with the production machine while waiting for the pieces by adjusting the speed.
- Zero labour costs; loading and unloading are automatic.
- Available with 6 or 10 satellites for a perfect adaptation to the washing needs.





It is completely built in AISI 304 stainless steel with particular attention to aesthetics by using, where appropriate, satin stainless steel. Fitted with external insulation with insulating mats of mineral wool 40 mm. thick and upper cabin with front door, tilting, for the inspection of all parts. The tank is equipped with: porthole for cleaning, in AISI 304 stainless steel, ball valve for tank drainage, level switch with electrical contacts, solenoid valve for automatic level reset, electric resistances for heating the solution, made in AISI 304 stainless steel. The rotating satellite-holder table, made of AISI 304 stainless steel, is supported by a worm geared motor, directly keyed on the rotation axis. The table is stepper rotary and is controlled by another gearmotor directly meshed with the rotary table. The cylindrical piece-holding satellites, mounted on the table, are made of high-resistance plastic material and are perforated on the shell. The integrated electrical control panel includes: general switch, PLC with touch screen liquid crystal display for reading and setting parameters, and for manual commands of the machine devices.





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**ULTRASONIC
WASHING
MACHINES**

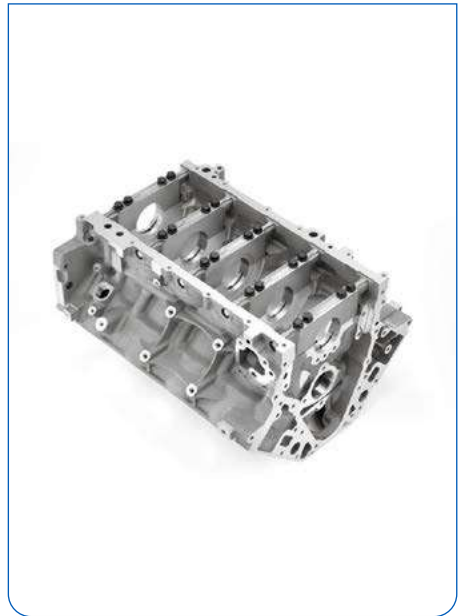
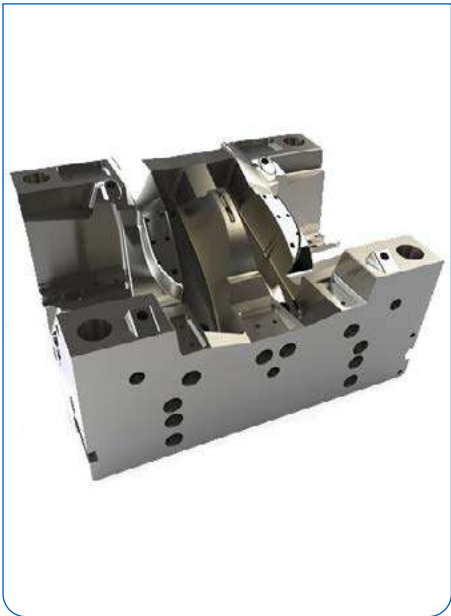
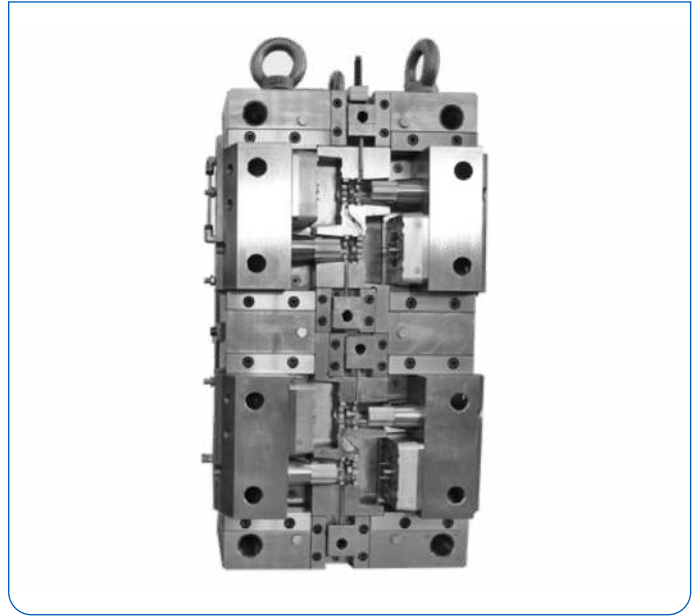




Ultrasonic cleaning is a safe and efficient technology to obtain thorough cleaning. The advantages come in the form of flawless cleaning of objects even with stubborn contaminants and cavities that are difficult to reach. The ultrasonic cleaning technology consists of an electronic generator coupled to one or more piezoelectric or magnetostrictive transducers that produce ultrasonic vibrations with a frequency of about 40,000 oscillations per second to the washing liquid.

These oscillations generate impact energy between the detergent liquid and the surface to be cleaned, capable of detaching even the most stubborn grime from objects of various sizes and even very complex shapes. Ultrasonic tanks are used for washing mechanical parts, gears, moulds, precision mechanics, etc.... removing from them oils, greases, abrasive pastes, shavings, powders, organic residues etc ... The ultrasonic tanks can be simple, having only a grid on the bottom that supports the pieces to be washed, or equipped with automatic lifts for immersion in agitation washing of the pieces.

The automatic lines with immersion baskets, with or without ultrasonic cleaning, are ideal for the treatment of small and medium-sized parts with the most varied geometries. The parts are positioned or placed in bulk in special baskets and then carried into the process tanks by automation systems with Cartesian axes. The principle, which provides for a sequence of tanks in an unlimited number and an automation system that can, through programmed recipes, affect all or part of these tanks, does not place limits on the versatility, complexity of the process and capacity. Each tank "or station" can be equipped with different process systems and technologies, stations with hydrokinetic effect, spraying stations, stations with ultrasound transducers, stations with air insufflation, etc. can coexist. at the same time the tools can be rotated if the shape requires it. The possibility of composing the cycle with the insertion of stages as desired makes this solution extremely flexible and ideal for those who need to process pieces of various nature and shapes.





The tank lines, served by one or more transfers, are created for very articulated treatments and processes, in which different treatment solutions are involved and when the association of a dedicated treatment sequence to the various types of pieces to be treated is required. The principle, which provides for a sequence of tanks in an unlimited number and an automation system that can, through programmed recipes, affect all or part of these tanks, does not place limits on the versatility, complexity of the process and production capacity. Each tank "or station" can be equipped with different process systems and technologies, stations with hydrokinetic effect, spraying stations, stations with ultrasound transducers, stations with air insufflation, etc... can co-exist. at the same time the pieces to be treated can be simply hung on a frame, they can be placed in static or rotating baskets, they can be introduced inside barrel barrels, etc The tanks can be made of stainless steel, in special alloys with high chemical resistance.





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**ROTARY
DRUM
WASHING
MACHINES**



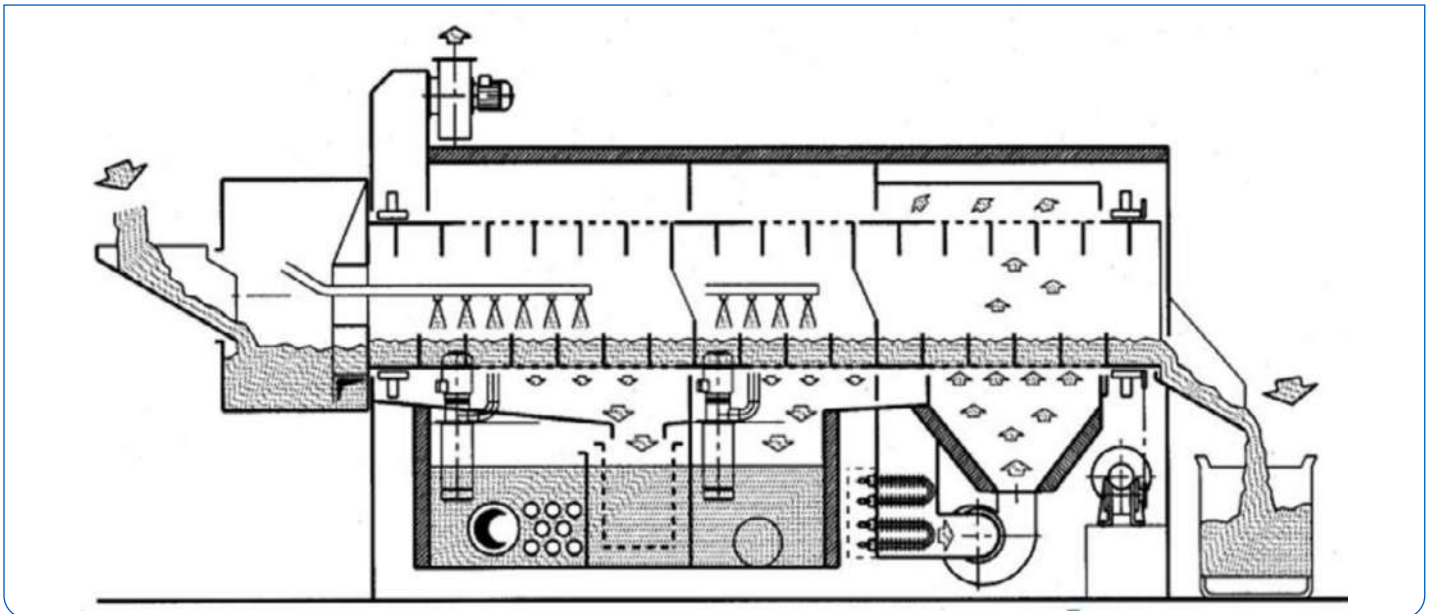


The rotating drum washing machines are ideal for the bulk washing of small and medium-sized parts. They are ideal for processes of turning, threading, stamping and drawing. The parts are loaded in bulk manually or through automatic feeding systems such as belt loaders, vibrating hoppers or box tippers. The working principle is very simple, the rotating drum is in fact a cylinder built with perforated or solid sheets, inside which a spiral is made, also in sheet metal, which rotates to push and direct the loaded pieces from one side, along all treatment phases up to unloading from the opposite side. They are able to perform fully automatic articulated treatments up to 3 phases with great effectiveness, freeing the operator from constant commitment on the machine.

They can be used for the following processes: degreasing, rinsing, phospho-degreasing, passivation and drying.

The slow rotation of the rotating cylinder conveyor allows the advancement of the material, which is turned slowly and undergoes the foreseen treatment cycle. In humid treatment areas the pumps draw the solution from the respective tanks and introduce it through special spray manifolds, inside the rotating cylinder, on the pieces. The solution, after having hit and submerged the pieces, falls back into the tank through the drainage holes provided in the rotary cylinder belt. A basket filter retains shavings or other impurities detached from the pieces in each section. Large dripping areas for pieces treated prevent liquid transfer from one area to another. Drying is achieved by a stream of hot air, which is heated by the electric resistances or by the exchanger, and is continuously recirculated by an electric fan. At unloading, a suitable chute conveys the pieces to the collection container.







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**STEPPER
MOTOR
TABLE
WASHING
MACHINES**

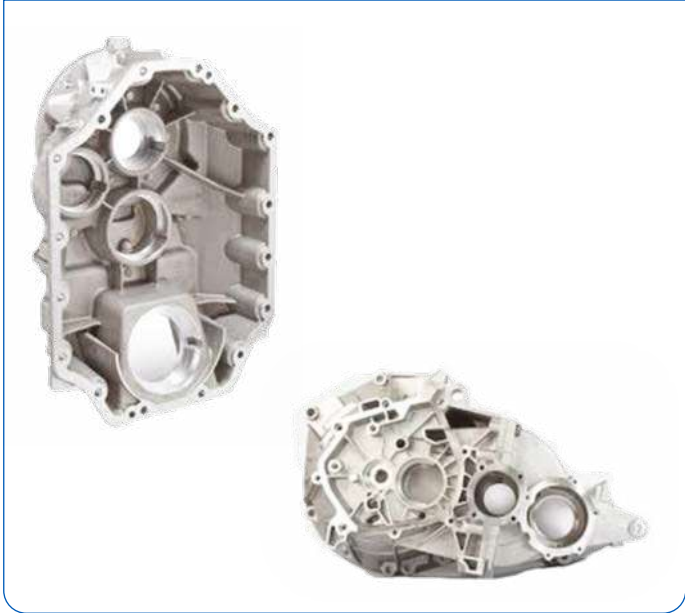
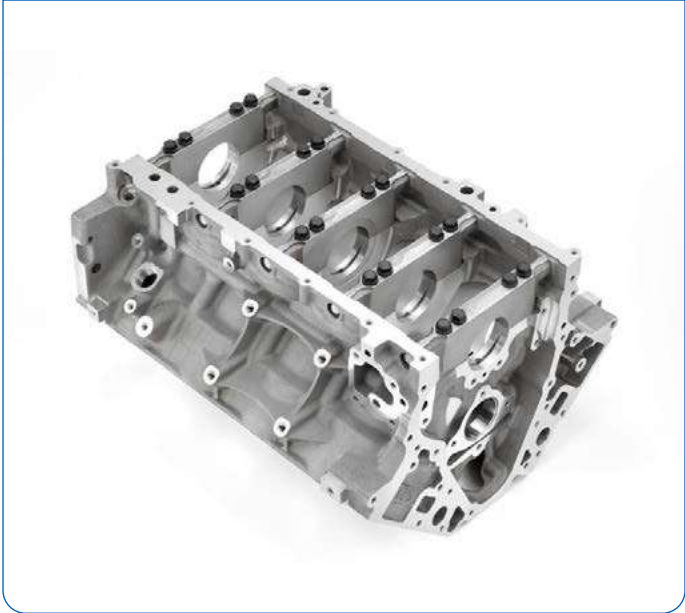




This type of machine, in recent years, has entered by force in the manufacturing industries of automotive, aeronautical, hydraulic and general mechanical components. Cleaning machines find an increasing demand for application integrated into the automated process island with characteristics of mechanical precision, versatility of interface with the surrounding automation systems, high production efficiency and quality to meet the increasingly stringent cleaning requirements. The rotary table machine is the combination of all these features gathered in a compact space and therefore easily integrated into the layouts. The operating principle takes into account a table with several positions (typically 4-6-8) which moves at rhythmic angular fractions, leading the pieces to be washed in as many stations equipped to perform a treatment sequence.

The table, processed by machine tools, is moved by a globoidal cam intermittent with characteristics of high speed and decimal precision, in each of the positions, on the table are placed the piece-holder equipment which can be pallets with tips or seats, or devices with pneumatic gripper, or even devices capable of imparting rotation. Loading and unloading of the pieces can take place in a single position or in two adjacent positions, and can be performed manually or with a robot. Inside, the stations feature a space for the washing equipment, which can operate with pressures of up to 200 Bar. These can be of generic type with high flow rates, calibrated with predetermined masks, or even fully automated.

The process can be simple washing and drying, but also articulated with rinses, demineralised water, etc....





The stepper rotary table machines described above, due to their conformation and precision, can provide for the use of a robot in one of the stations that allows targeted treatment in all cavities, blind holes, lubrication ducts, undercuts, etc.... The washing robot is a 6-axis anthropomorphic unit, with variable wrist loads and outreach dimensions depending on the piece and the application, it is a IP67 protection rated machine but also features additional protection during washing in the form of an integral sheath specially designed to ensure a watertight seal. Depending on the treatment to be performed, different working pressures can be used, even up to 200 Bar, and a wide array of "tools" employed. These are automatically controlled by the robot that picks them up and deposits them as needed from a special holder designed by Triton. It is evident that such versatility does not set limits on the ductility of the system and on the quality of treatment that must be achieved. Our systems, unique in this aspect, are able to automatically manage washing "tools" (nozzles with different shapes, flow rates and spraying geometries) and mechanical deburring "tools" (rotating brushes, lamellar brushes, pipe cleaners), etc....).





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**CONVEYOR
BELT
WASHING
MACHINES**





The tunnel washing systems with conveyor belt are characterized by versatility, high productivity, ease of management, efficiency and quality of treatment.

They can be configured for simple processes or for very complex processes that require the use of a large number of different treatment phases.

The parts to be treated, positioned on a conveyor, go through all the treatment phases in sequence, until they reach the drying oven before showing up at the automatic exit, thus freeing the operator from constant commitment on the machine.

They can be used for the following processes: degreasing, rinsing, phosphor-degreasing, passivation, pickling of aluminum and light alloys in general, final washing of polished stainless steel, drying.

Depending on the logistics of the plant, the geometry and the weight of the pieces to be treated, different types of conveyors are used: belt with ribbed mesh (more or less dense), parallel chains with specific support equipment, pallets, etc.

The construction is completely in AISI 304 or AISI 316 stainless steel, they are characterized by extreme structural strength, the external finish can be painted or completely made of satin stainless steel.

The energy sources for heating the process solutions and for the drying air, can there are many: electricity, methane gas or LPG, process fluids such as steam or superheated water.





CONVENIENCE OF INSPECTION AND MAINTENANCE

All the spraying ramps are connected to the distribution manifolds with quick release couplings in AISI 304 stainless steel. The system allows the quick disassembly of all the ramps and their correct repositioning without using tools. Even the individual nozzles are mounted with a special spring attachment that allows quick disassembly and subsequent repositioning without the risk of changing the inclination or the correct spray angle. All treatment areas can be easily inspected through large doors, placed on the side opposite the tank wall.

Some machines, with reduced passage sections, can feature the treatment areas completely open to the top. Opening is made easy by gas springs or automated with cylinders



OPTIONALS



SPRAYING RAMPS



FILTRATION SYSTEMS

SAFETY AND CONTROL

All the access doors to the treatment areas are interlocked with sensors or electrical contact hinges. These components are standardised, class 4, and managed by PILZ safety relays. The management and supervision of the process can be entrusted to a PLC with an interface operator panel, where all the operating parameters are managed. Thanks to the logic of the PLC, the start of the various motors is performed in sequence to avoid important current peaks. Furthermore, photocells can be employed at the tunnel entrance, the PLC can manage the sequential shutdown of the zones, with a consequent energy saving.



REVERSE OSMOSIS DEMINERALISER





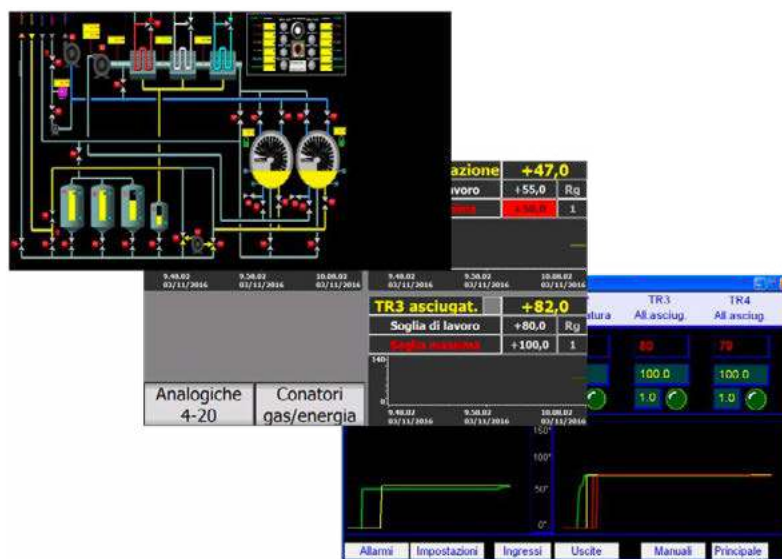
COALESCENCE DEOILATOR



CHEMICAL PRODUCT DISPENSER

ENERGY SAVING AND ENVIRONMENTAL FRIENDLY

The shell and tube heat exchangers powered by fuel burners are made of AISI 304 stainless steel and built with geometries suitable for achieving high thermal efficiency. Multi-stage machines recover the flue gases from the exchanger of the first degreasing tank in order to heat the subsequent rinse tank through a second exchanger. This entails significant energy savings. The machines can be equipped with a system for the condensation of vapours, thus avoiding the need to connect an external exhaust flow. The system, which uses an electro-aspirator and an “air/air” cross plate heat exchanger, allows the condensation of saturated vapours and the consequent relapse into the machine of the condensate in a liquid state.



MANAGEMENT SOFTWARE



Triton
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**OVERHEAD
CONVEYOR
WASHING
MACHINES**





Tunnels with overhead conveyor are characterized by versatility, high productivity, ease of management, efficiency and quality of treatment, and are also distinguished by the ability to handle pieces with large dimensions and weights. They can be configured for simple processes or for very complex processes that require the use of a large number of different treatment phases. Tunnels with overhead conveyor require the pieces to be hung on "hooks for pieces" which are in turn hooked to the conveyor. These racks can be fixed or rotating according to the complexity of the geometry of the pieces to be treated, or according to the needs of any downstream processing.

The impressive versatility of the overhead chain conveyor system makes it possible to freely configure treatment tunnels and entire process lines, the tunnel can therefore be configured in a linear horseshoe, L, etc ... manner. The same overhead chain can carry the pieces for very long distances and can therefore enslave different work islands without the pieces being manipulated, using two-rail air carrier, the line can coexist with different loading and unloading areas, storage areas for pieces etc....

These plants are typically employed for pre-treatment before painting, the washing of veneers and press-folds, small carpentry, motor bodies, pump bodies, filter bodies before assembly, parts after polishing, such as stainless-steel sinks, stainless steel trays, stainless steel tanks, etc.





UNIVERSAL PIECE RACKS

The innovative system of racks, intended for the treatment of stainless-steel parts, makes it possible to load pieces of different sizes and geometries, without having to move or add other elements. In addition to facilitating the simplicity of the loading / unloading operations, the system guarantees greater stability during all stages of the treatment, preventing the pieces from oscillating, crawling and moving under the effect of streams or blowing air. Another feature of this system is that it does not create points of contact with the surface to be washed in order to have uniform treatment and, thanks to the materials used, the stainless-steel surface is not in the least marked.

CONVENIENCE OF INSPECTION AND MAINTENANCE

All the spraying ramps are connected to the distribution manifolds with quick release couplings in AISI 304 stainless steel. The system allows the quick disassembly of all the ramps and their correct repositioning without using tools. Even the individual nozzles are mounted with a special spring attachment that allows quick disassembly and subsequent repositioning without the risk of changing the inclination or the correct spray angle. All treatment areas can be easily inspected through large doors, placed on the side opposite the tank wall. Some machines, with reduced passage sections, can feature the treatment areas completely open to the top. Opening is made easy by gas springs or automated with air cylinders. In addition, to facilitate cleaning of the treatment tanks, our machines have large lids and portholes.

OPTIONALS



SPRAYING RAMPS



FILTRATION SYSTEMS

SAFETY AND CONTROL

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REVERSE OSMOSIS DEMINERALISER





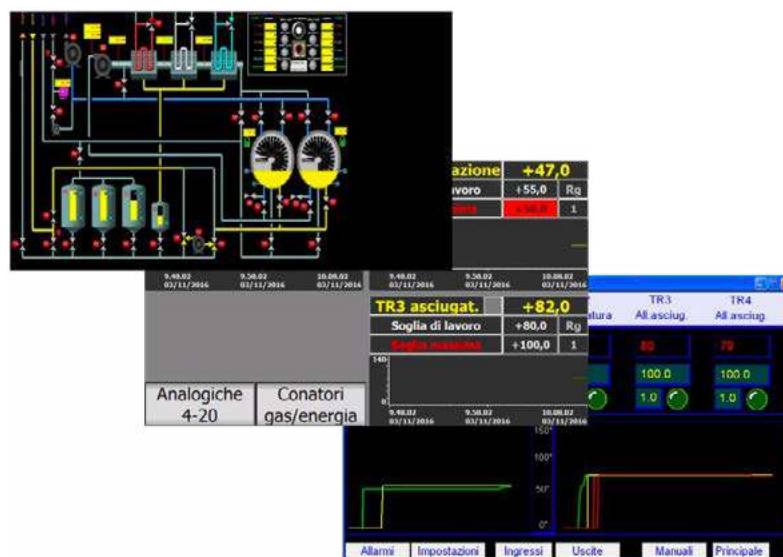
COALESCENCE DEOILATOR



CHEMICAL PRODUCT DISPENSER

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MANAGEMENT SOFTWARE



Triton
a d v a n c e d s e a r c h

**ALL-IN-ONE
MULTI-PURPOSE
MACHINE**





Why ALL-IN-ONE? Because this the only washing machine capable of combining three washing dynamics "which normally each require a dedicated machine" and at the same time, for each of these, three different washing methods; ALL-IN-ONE indeed!

The various geometries of the pieces to be washed often require the choice of the machine that best lends itself to obtaining an optimal result, thus, some pieces can only be spray washed, while some instead require to be treated in immersion with a hydrokinetic action of the liquid, some finally need to be treated with the aid of ultrasound. ALL-IN-ONE is able to perform all three of these washing systems simply by selecting the specific recipe on the display. Moreover! ALL-IN ONE is capable of.

So far we have talked about the extreme versatility of the ALL-IN-ONE with reference to the various washing methods, but "mechanically" it can do so much more. Fitted with special dedicated equipment, it is able to treat the pieces placed in a circular basket that will rotate around its vertical axis, or placed in a normal standard rectangular basket that can simply rotate around its vertical axis or, if equipped with a lid, it can follow involutions by rotating at the same time around its vertical axis and around its horizontal axis.

These three operating modes, in combination with the various washing methods, do not place limits on the potential of this compact but spacious machine, it will therefore lend itself to any geometry of pieces, simple, complex, delicate, small geometries to be treated in bulk mass, etc.....





Washing systems:

- Spray
- Immersion washing with hydrokinetic action.
- Ultrasonic

Mechanical:

- Rotation on the vertical axis
- Combined rotation on the vertical axis and on the horizontal axis



Treatment cycles:

- Spray
- Hydrokinetic immersion
- Ultrasonic
- Spray + hydrokinetic immersion
- Spray + ultrasound
- Hydrokinetic immersion + ultrasound
- Spray + hydrokinetic immersion + ultrasound



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**SPECIAL
MACHINES
AND PLANTS**

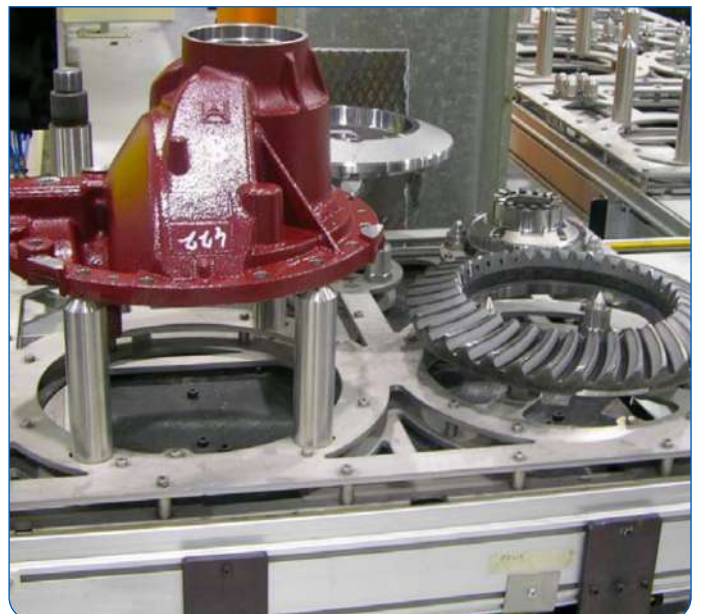




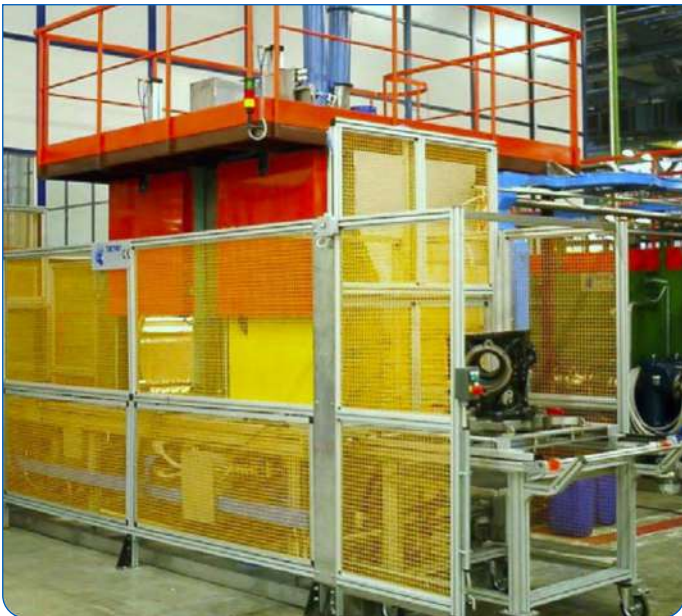
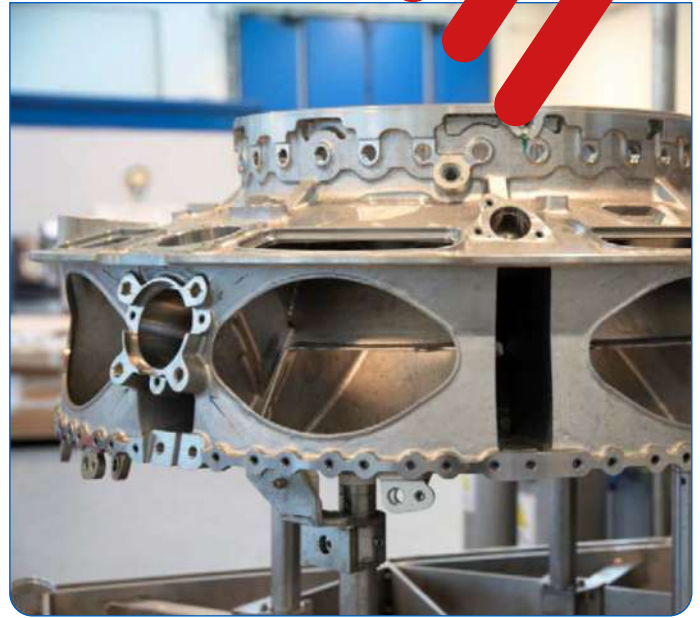
Technological innovation involves all the main aspects of surface treatments. High productivity, high repeatability and consistency of the result are now essential pre-requisites for plant manufacturers. Today, the challenge revolves around reduced consumptions, reduced emissions into the atmosphere, safety for operators, continuous filtration methods, flexible automation and, above all, greater integration between know-how and technology.

The range of products that TRITON develops is constantly evolving and we are able to study customised solutions that allow our machines to be integrated into existing work islands or production lines.

We round out this offer by recently introducing a new range of highly automated solutions for deburring processes; state-of-the-art systems for the most technologically advanced industries such as automotive and aeronautics.









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TRITON ADVANCED SEARCH

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