



# EQUIPMENTS FOR THE SURFACE TREATMENTS

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## TUNNEL

**Tunnel machine** is considered the most traditional of washing/chemical treatment systems and is suitable for the cleaning and chemical treatment in general of details with simple shapes.



These machines are often used in the production lines of mechanical, automotive and aerospace companies for inter-process cleaning or for precision cleaning before assembling. Due to their own flexibility, tunnel equipments can be used for big and small productions.

Designed exclusively for **water based spray cleaning**, the treatment effect is based on the chemical, mechanical and thermal action in order to insure good cleaning results. The working principle is based on a linear movement of the parts through many phases of the treatment by **continuous movement** or by **positioned stops** in front of spraying jets for precision cleaning. During this movement the parts are involved by heated cleaning solution in high pressure.



In the case of a tunnel with a **conveyor belt**, the components are loaded on to a conveyor (with a fret mesh or bars) which conveys the pieces through the different stages of treatment: the development of the machine is in line



In the case of a tunnel with **overhead transport**, the components are loaded in to small piececarrying jigs anchored to a chain which transports the pieces through the various stages of treatment: As the development of the conveyor necessarily has to be in a closed loop, loading and

unloading can be indifferently separate or concentrated in a single station.

In both cases the conveyor can work by **continuous** movement or by **positioned** stops : this last option is suggested to have a positioned cleaning. It's possible to take place single or **multiple treatments** like: cleaning, rinsing, passivation, protection, blowing, drying..... In order

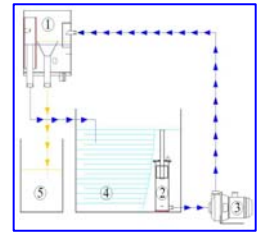


to follow the always different automotive industry requirements, Ceever produces small and compact machines with custom built transport system. According to the requirements of the customer in terms of cycle and production, the tunnel is made to measure in order to guarantee maximum efficiency and reduced consumption.

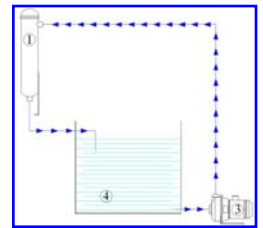


In addition it's possible to have these **optionals**:

**De-oiler:** usually included in the degreasing tanks, the de-oiler divides the water from the oil (no emulsion) in order to increase the life of the cleaning solution. The circuit is composed by a pump(3) that aspirates from the equipment's tank(4) by a device that follows always the level (2) and send the liquid to the separation device (1). From the separation device the water come back to the tanks (4) and the oil goes in an external tank (5).



**Filtrations:** for special requirements it's possible to install filters 1 to 100 microns retention. For these machines are usually installed bag filters(1) feeded by an independent pump(3) that aspirates the liquid from the tank (4), press it in the filter (1) and send it back in the tank (4).



**Automatic water restoration:** the continuous use of the heated equipment cause a water's evaporation that reduce the water's level inside the machine. In order to resolve this problem, it's possible to assemble an automatic level restoration system.

**Rinsing water control:** in order to save, as much as possible, the rinsing water, it's possible to install automatic valves controlled by PLC

**Teleservice:** it's possible to install a modem that allows the remote control of the machine (in order to help the assistance) or in order to send SMS about machine state.

**Remote controls:** for big machines, it is often useful to have the controls far from the electrical panel. For this reason it's possible to install remoted control panels.

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