



WASHING TECHNOLOGY



CLEANING SOLUTIONS
FOR EVERY SURFACE



1949

The beginnings: on American license, Rotofinish introduces in Italy the mass deburring and cleaning processes.

1965

The first water-based spray degreasing plant to remove cleaning paste is realized, eliminating the use of solvent.

1985

The Equipment Division becomes independent and Tecnofirma S.p.A. is born.

1990

Tecnofirma moves to viale Elvezia 35 in Monza, in the prestigious building projected by architect Angelo Mangiarotti.





EXPERIENCE AND INNOVATION

For more than seventy years Tecnofirma S.p.A. has been a pioneer on the international market thanks its innovative and up-to-date solutions for the treatment of plastic and metal surfaces.

Over these years, we have specialized in cleaning treatments, with solutions that have changed the rules in this industrial and automotive field. Not just for standard solutions, but also special solutions, customized on the specific needs, with activities based on an important co-design, with our most important customers.

Our "reference list", built over the years, is composed of companies of all size and manufacturers of various types of products, including the most famous automotive manufacturers in the world.

Tecnofirma has always pursued customer satisfaction from the first contact to the final testing of its products. Passion for technology and our devotion to our customer needs drive all of our employees to work for the best results.

Since the Nineties, the Italian company has enhanced the development of the international market with the opening of local companies to be closer to its customers: in China with Diamond Beijing Machinery Equipment Co. Ltd, in Germany with Tecnofirma Deutschland, in America with Tecnofirma America.

1992

Tecnofirma is awarded with the UNI EN ISO 9001 Quality Certification, first company in Italy in the Plant and Machinery for Surface Treatment.

2011

Diamond (Beijing) Machinery Equipment Co. Ltd opens in Beijing. Main goal of the company is to extend the made in Italy technology in the Far East.

2020

The electrification of vehicles brings new production requirements, and Tecnofirma begins developing dedicated machines to meet the new market challenges.

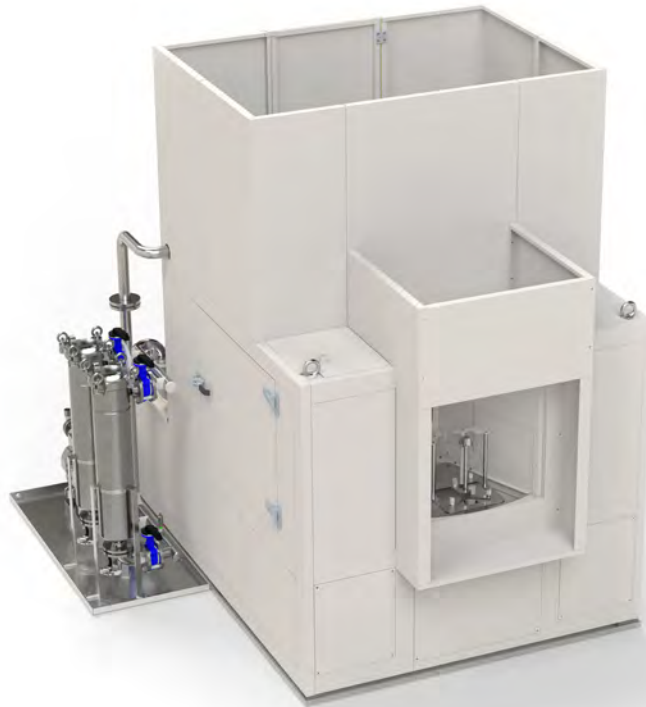
2021

Opening of Tecnofirma Deutschland: the German branch is founded to meet the needs of the North Eastern European market

2022

Opening of Tecnofirma America Inc. The American branch is established to follow the US, Canadian and Mexican markets (USMCA) more closely.





POSITIONED SPRAY WASHING “SAT”

Standard processes :

- Washing
- Compressed air blowing
- Recirculated air drying

Optional processes :

- Robotized washing
- Mobile ramps & tools
- HP deburring
- Vacuum drying
- Parts conditioning / cooling (external)

In the rotary table washing machine - SAT - parts are placed on special pallets fixed on a rotary table and handled, step-by-step, through a series of treatment phases.

The accuracy positioning ensures a complete and “targeted” washing of the parts, even the most complex ones; the stages’ number, and type of washing are fully customizable according to the customer’s needs (mobile equipment, robots, etc.).

This type of machine is ideal for washing medium-small components, even those with complex geometries. The circular layout can automate and speed up the loading and unloading operations and makes this solution particularly suitable for production environments based on robotic islands.



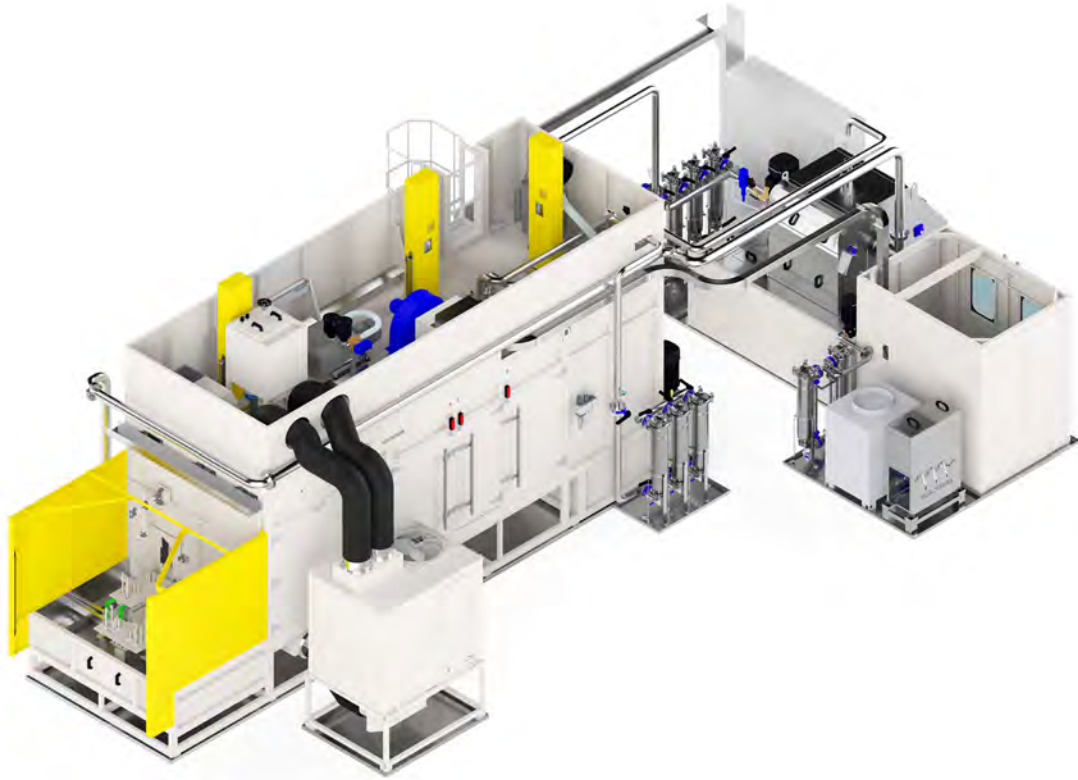
SAT HP for brake callipers



SAT for suspension frames



SAT for turbochargers



POSITIONED SPRAY WASHING “SAT LIN”

Standard processes :

- Washing
- Rinsing
- Compressed air blowing
- Recirculated air drying

Optional processes :

- Additional rinsing
- Robotized washing
- Mobile ramps & tools
- HP deburring
- Vacuum drying
- Parts conditioning / cooling

In SAT LIN washing machines, parts are placed on special pallets handled step-by-step, through a series of treatment stages, the number of which can be defined according to the chemical cycle and the customer's specific requirements.

The closed-loop machine layout allows a more flexible configuration of the loading-unloading zones (up to 3 zones available).

It is also possible a fully cycle' customization, also integrating a parts' cooling stage, if necessary.



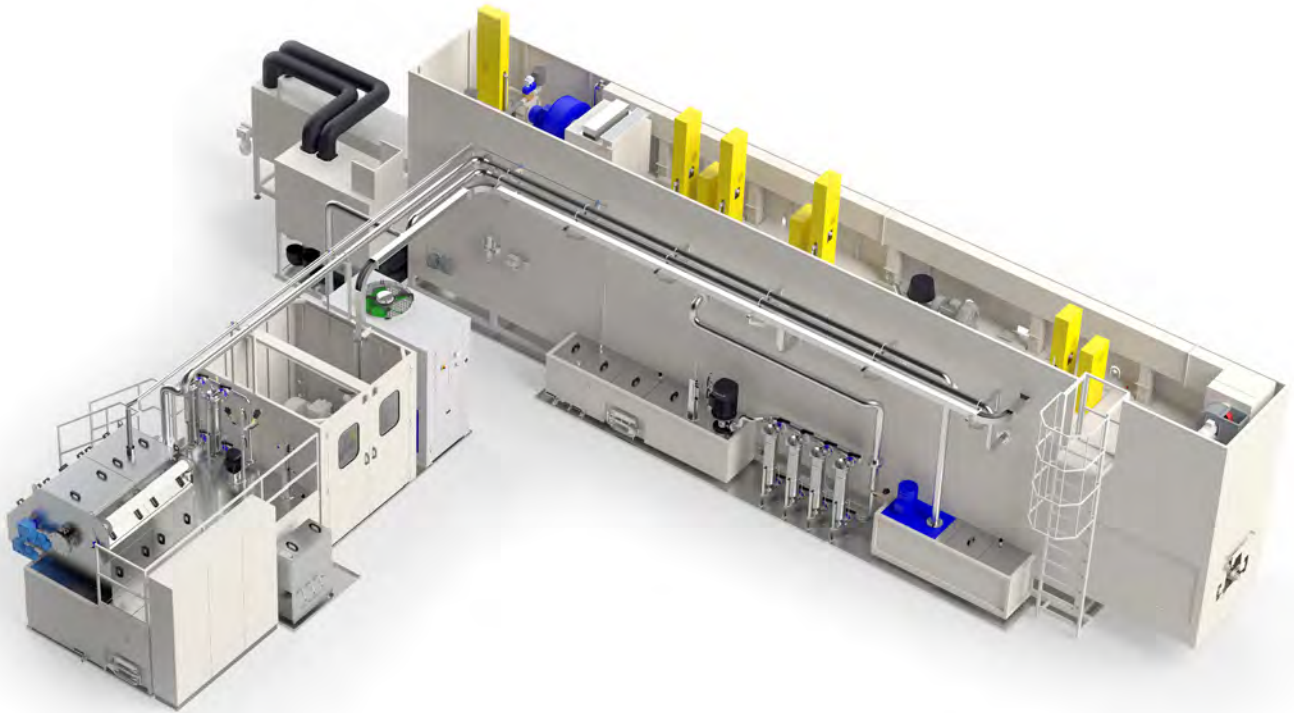
SAT LIN for battery housings



SAT LIN for gearbox transmission housing



SAT LIN for gearbox gears



POSITIONED SPRAY WASHING “TUNNEL”

Standard processes :

- Washing
- Rinsing
- Compressed air blowing
- Recirculated air drying

Optional processes :

- Additional rinsing
- Robotized washing
- Mobile ramps & tools
- HP deburring
- Vacuum drying
- Parts conditioning / cooling

The tunnel washing machine is a treatment system with a linear configuration (In & Out), which is well suited for the most industrial production lines; the parts to be treated can be handled with different conveying systems (belt conveyors, free or bound pallets, fly roller chains, rollers, lift & carry, etc.), through the sequence of various treatment stages.

Among the various types of handling, the lift & carry type is the most suitable for complex parts (prismatic) that require precise positioning during the washing cycle, with high cadences.



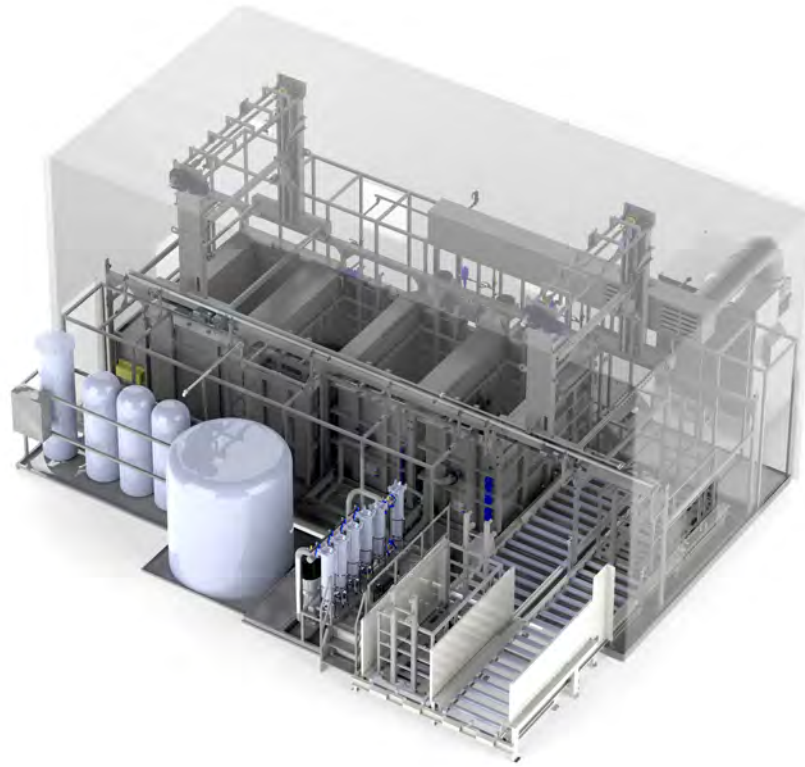
Tunnel with pallet chain conveyor for automotive components



Tunnel with recirculating pallets for battery housing



Tunnel step by step for automatic gearboxes



DIP WASHING

Standard processes :

- Washing
- Rinsing
- Recirculated air drying

Optional processes :

- Inject fluid
- Ultrasonic devices
- Additional rinsing
- Spray washing
- Phosphating
- Dewatering
- Passivation
- Oiling
- Vacuum drying
- Parts conditioning / cooling

The Dip washing treatment is ideal for washing various-size parts with a wide variety of shapes and geometries; parts are loaded into special baskets, which can be internally configured, according to specific needs.

This type of washing line consists of a sequence of treatment tanks, the number of which, depends on the chemical cycle chosen; baskets' handling is carried out by transferring robots (trolleys) and can also integrate the baskets' rotation from themselves, in the various process steps.

Ultrasonic devices can also be used in the process, based on the customer needs; additional complementary stages can be integrated, if requested.



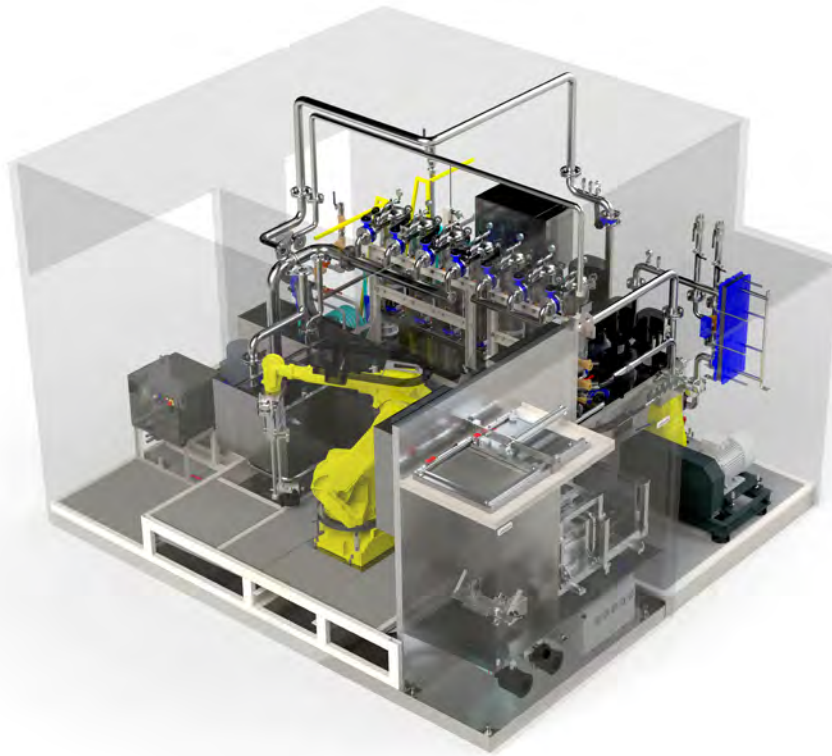
Dip washing machine for battery housing



Trolley detail Dip washing line for axle components



External view Dip washing line for axle components



ROBOTIZED WASHING

Standard processes :

- Washing
- Rinsing
- Compressed air blowing
- Recirculated air drying

Optional processes :

- Additional rinsing
- Water chamber fluxing
- Mobile ramps & tools
- Vacuum drying
- HP deburring
- Brushing
- Vacuum drying
- Parts conditioning / cooling

Robotized washing technology offers maximum flexibility and versatility in handling and processing a wide range of parts.

The use of an anthropomorphic robot allows multi-axis manipulation of the object, and enable to achieve, if necessary, precision positioning.

Alternatively, it can be integrated a washing tool directly on the robot wrist, to carry out a targeted washing or deburring treatment.

The use of robots offers several advantages; robots effectively handle a wide range of products by easily adapting to their specific shapes, sizes, and specifications. If required, gripper change systems can be considered.

In terms of productivity, the modular design adapts to increasing production volumes and allows progressive investment with a rapid implementation.



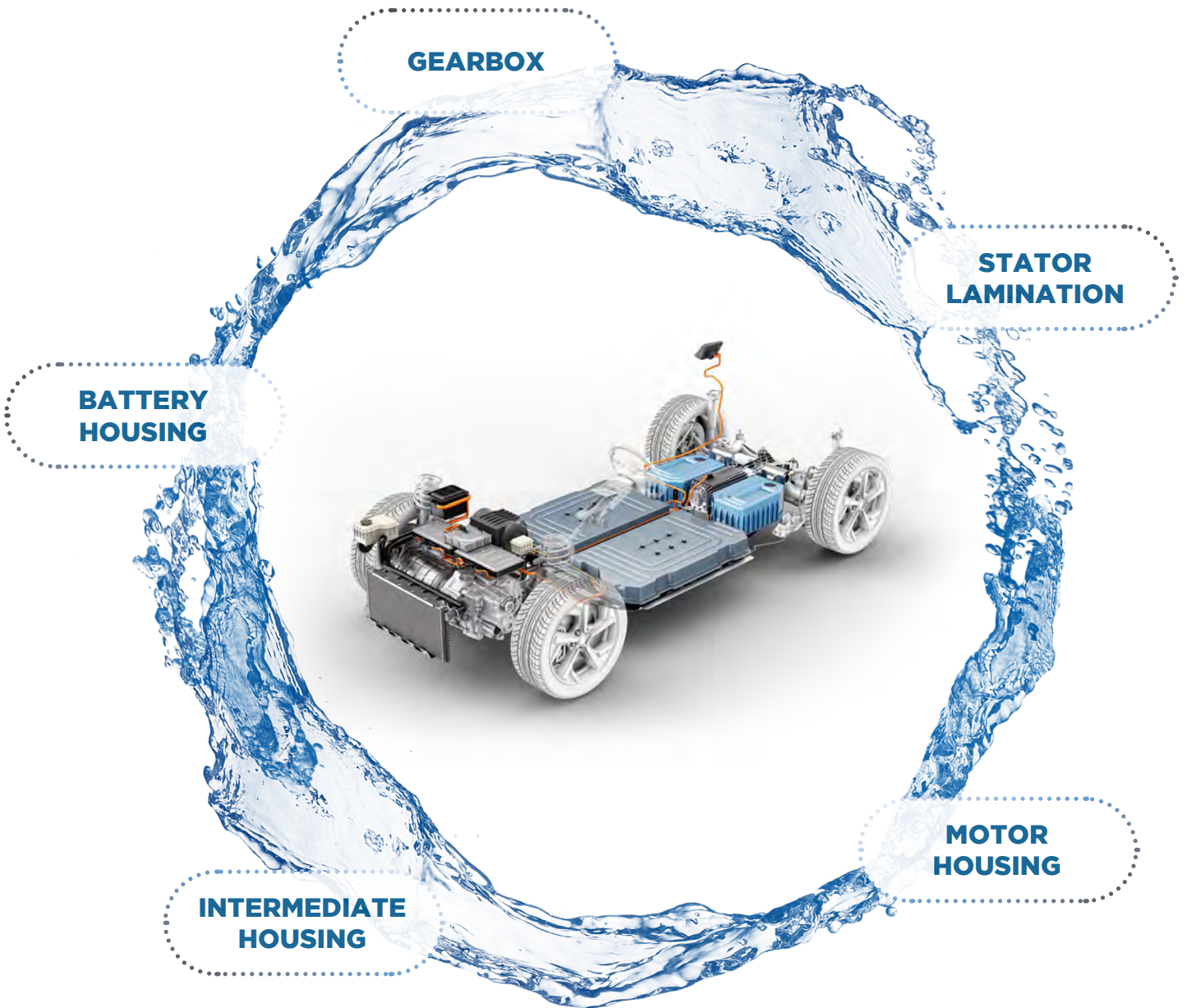
Robotized machine for engine blocks



Robotized machine for high performance engines



Robotized machine for engine heads



E-MOBILITY READY

Automotive future is electric, in all its versions (BEV, HEV, PHEV), and requires a paradigm shift in the management of the production processes, linked to brand-new components, such as gearboxes, variators, inverter, rotor and battery housings, etc...

Tecnofirma, thanks to its multi-year experience in the industrial washing domain, is "E-MOBILITY READY" and able to suggest its Customer-base the best solutions to treat the main components existing in the electric vehicles.

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