

Surface treatment

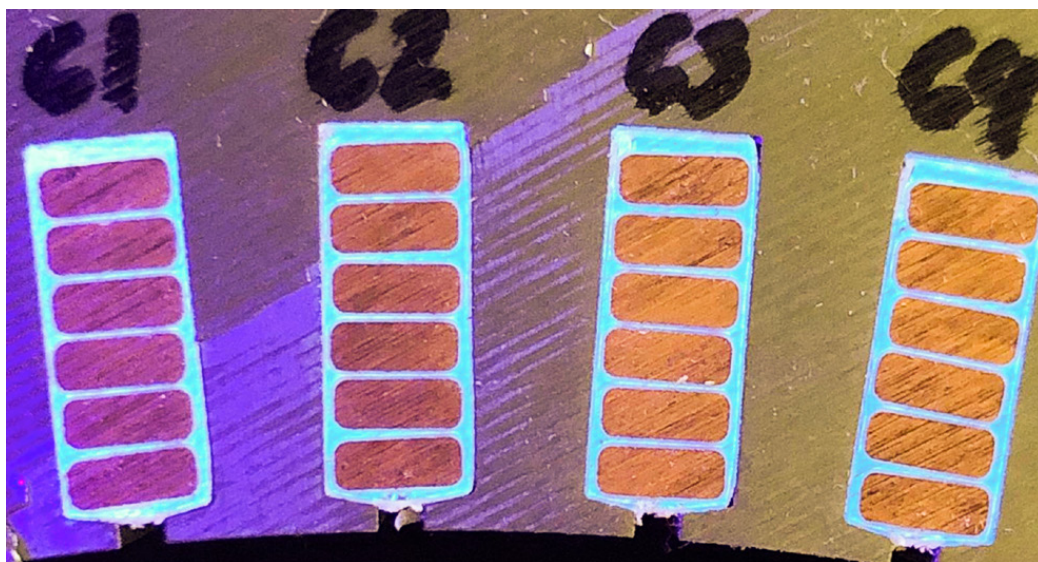
Tests and checks for high-quality solutions

Stators, rotors, coils and electric components. An exemplary enterprise due to the solutions for the treatment of plastic and metal surfaces, Tecnofirma makes available for its customers an advanced laboratory to test impregnation and washing processes, supporting them also with prototype sampling services

by Gianadrea Mazzola

Example of
weld protection
with epoxy
powders





Analysis of slot saturation of Hairpin stator. Example of a slot section on 6-bar half stator pack (L= 170mm)

Hairpin stator with applied resin

A large manufacturing company that develops and manufactures special machines usually makes use in its structure of the presence of an industrial laboratory in its own structure, able to suggest and address new projects.

Through the execution of tests, inspections, assessments, research and audits with its customers, it can so offer them tools of analysis, research and verification of production plants' performances, both for impregnation and washing and coating. In other words, a company that cares about the technological progress cannot do without its own laboratory. Like the progress made possible by Tecnofirma, who is, for over seventy years, an exemplar on the international market with innovative and updated solutions for the treatment of plastic and metal surfaces.

The added-value of the preventive test and of the prototype sampling

Tecnofirma laboratory makes available, with high competence dedicated staff, a service that in recent years has qualified the various offers to customers, especially in the automotive service, permitting them an efficacious result anticipation, being able to test a safe and reliable process.

«The laboratory –Fabrizio Santoro, director of the impregnation line, explains – allows in fact “touching with hand and guaranteeing” in advance what afterwards it will be possible to achieve on production machines. Testing preventively a process allows granting not only an anticipated result, but also the possibility of intervening in advance on the prototype component design, of making changes in progress on the customer's various pieces to optimize both their impregnation process and the final target of a high-quality and durability product in time».

Concerning this, Tecnofirma, in order to provide full support to its customers, is organized and structured to implement also prototyping batches. The machines at disposal in the laboratory assure high quality standards and the capability of dealing with prototyping manufacturing batches even of hundreds of pieces, to be treated with both resins and with powders.



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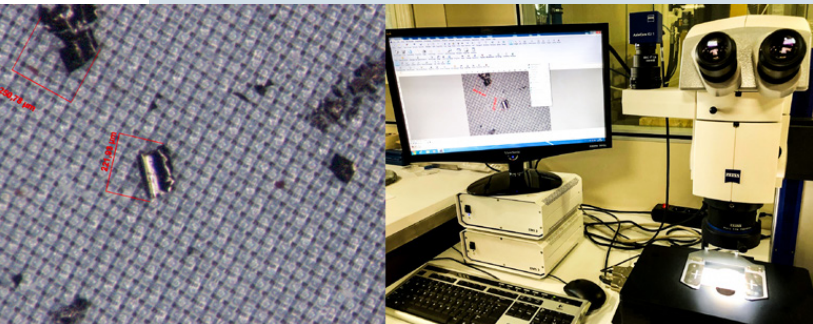


Fabrizio Santoro, director of the impregnation line of Tecnofirma

QUALITY OF COMPONENT CLEANNESSTESTED IN LABORATORY

Besides the impregnation process in Tecnofirma laboratory is also available a system to check the quality result of washing process, executed to assess the process quality of machines in testing phase before the delivery to final customers. The methodology to detect the contamination degree on washed parts is the following:

- The piece under test is put in a stainless-steel container with suitable sizes for containing it completely.
- Spraying is performed on the whole surface to be tested by means of a specific gun or airbrush equipped with a straight nozzle, an organic solvent (heptane) at a pressure of 5 bars.
- The sprayed liquid is collected and filtered by a filter with filtration degree normally included between 5 and 20 microns, previously weighed by a precision scale.
- The filter is placed in a specific drying furnace at a temperature of 80° C for 60 minutes.
- After cooling it, the filter is weighed again to assess the weight of the residue.
- Finally, by means of a microscope, the number of metal particles and present fibres is checked and their size is determined.



Check of the number of solid particles through microscope performed during a washing test of Tecnofirma laboratory.

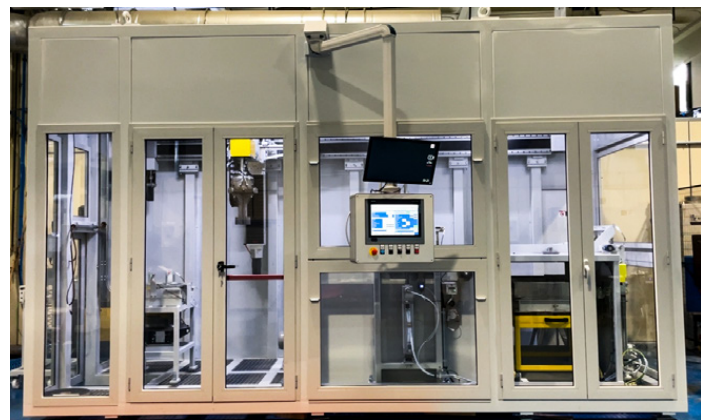
Process efficacy, test targets and result assessment

Tecnofirma has developed various primary impregnation processes along the years and it goes on constantly developing them, having the possibility of testing them in the company's laboratory:

- Trickling impregnation process for automotive stators and wound rotors;
- Roll Dip impregnation process for automotive rotors, generators, induced starters and so on;
- Powder Dipping impregnation process for the coating /protections of automotive stators' welds;
- Hot and cold Dipping impregnation process for stators, rotors and coils in general;
- Vacuum impregnation process, intended for motors with heavy-duty services and with the use of medium-high viscosity resins;



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Tecnofirma can also carry out tests of Powder Coating applications in its laboratory

- Potting & Encapsulation impregnation process, intended in particular for automotive stators with sports and extreme performances, with the use of bi-component resins featuring very high viscosity and density.

The presence of a laboratory, like the one made available by Tecnofirma, shares in the ideation, in customer-supplier synergy, of the production machine and in its modification, up to intervening on the customer's component.

«All that can take place in progress –Santoro ends – is a real product re-engineering to optimize the process and to grant very high qualitative standards in the final product».