



A New Automatic Powder Coating Plant for SPRECH, a Leader in Metal and Solar Canopies: Efficiency and Quality for End Customers

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Aluminium and beyond.

In the solar awning sector, especially when it comes to covering rather large spaces, using both steel and aluminium allows combining structural lightness and strength. The offer of Sprech Srl (Martano, Lecce, Italy), a company specialising in the conception, design, planning, and industrialisation of outdoor solutions, is geared towards this goal, with a particular focus on open-air public areas. Recently, the success of Sprech's industrial philosophy has called for the installation of a new powder coating plant capable of providing the company with the finishing quality and operational flexibility required to cope with its increased production volumes. Euroimpianti has thus developed a highly efficient, automatic plant solution in collaboration with Futura Convogliatori Aerei and Wagner Italia.

The Qbox Blue bioclimatic pergola by Sprech to create a dream outdoor space.



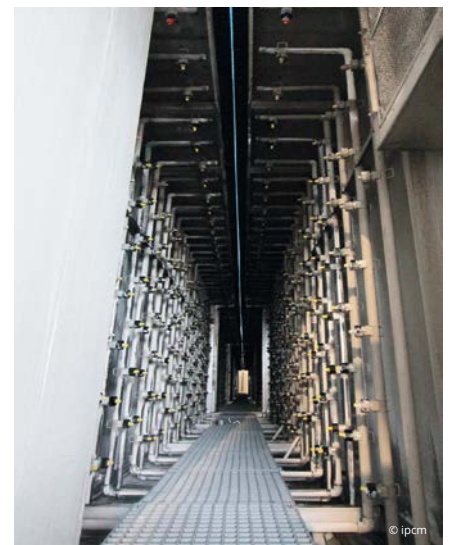
Sprech was established over forty years ago based on an idea of its current Managing Director Pasquale Rescio, who decided to combine his passion and experience in the steel and textile awning field to start a firm whose core competence was the design of tensile structures. Today, Sprech is a family business led by its founder and his children, assisted by a highly qualified technical and professional team. The solid technological know-how acquired and constantly fine-tuned over the years allows it to offer spot-on solutions for every market need: modular covers, pergolas, gazebos, dehors, and tensile structures for commercial or residential use, with a particular focus on public spaces and coastal environments.

All Sprech products are designed to improve their users' quality of life and foster a balanced relationship with the environment. All of its solutions can be adapted to any landscape and requirement, for both public and private use. Functionality, aesthetic refinement, and environmental sustainability are the principles that guide the design of these products. "A team of architects and engineers as well as a large research & development staff enables us to launch an average of five new products every year, striving to reach performance degrees that always exceed market demands," states Lucia Rescio, one of the founder's daughters. "Sprech also owns a foundation that sponsors the biennial event Agora Design, which offers a rich programme of exhibitions, lectures, and thematic workshops, including a competition for the prototyping of new structures that provides an opportunity for designers to make themselves known."

"My father Pasquale was the first to patent a pagoda-shaped outdoor cover, which is a structure with four steel poles stretching a PVC sheet," adds Rescio. "Over the years, our business' evolution has led Sprech to become a leader in Italy in the field of steel canopies for exteriors. We then incorporated all the technology necessary for the production of aluminium bioclimatic pergolas. Today, our main target market is Europe, with a 40% export share, which also includes small shares in North Africa and the Middle East. Our strength remains the manufacturing of large-sized outdoor coverings: thanks to the expertise and experience gained in metalworking, Sprech is the only company in this sector able to cover large areas with a minimum of uprights.

In this design and production context, the coating process is clearly a delicate and strategic phase, as it provides the structures with their final appearance, allows customising the proposed solutions, and guarantees excellent outdoor durability of finishes. "The powder coating plant that Euroimpianti designed by integrating Wagner's latest application technology and a reliable Futura Convogliatori Aerei conveyor represents the end of a production line that starts from the profile cutting station and reaches directly the finishing one," explains Alessandra Ripa, the Marketing Manager of Sprech.

"It also enables us to coat both hot-dip galvanised steel and aluminium with equal quality and durability results in compliance with the Qualicoat guidelines."

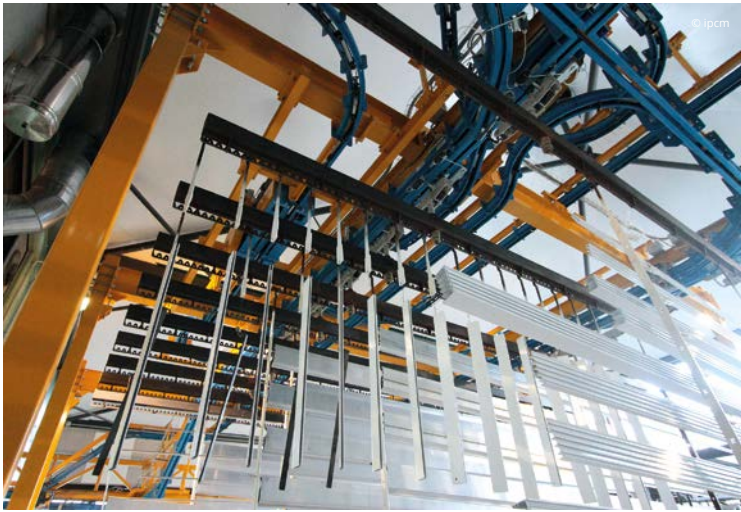


From top:

- The loading bay of the horizontal coating plant for aluminium and steel profiles and sheets supplied by Euroimpianti (Valeggio sul Mincio, Verona, Italy).

- The pre-treatment cell tunnel.

- The inside of the spray pre-treatment tunnel.



As can be seen from the type of workpieces hanging from the load bars, Sprech paints a wide range of parts in very different sizes.



The application area, with a focus on the switches of the power&free conveyor supplied by Futura Convogliatori Aerei (Robecco Pavese, Pavia, Italy), which create the storage buffers needed to guarantee the flexibility of the system.

Vertically integrated production

At Sprech, raw materials (extrusions and sheet metal) of the highest quality, state-of-the-art technology, and last-generation machinery form the basis of a fully vertically integrated production process guaranteeing certified products and high quality standards. The entire manufacturing cycle is handled in-house: site surveys, design, rendering, prototyping, production, and supervision of assembly on site. "Sprech's production activities are divided into two business lines, one related to steel and one to aluminium, and they take place in four plants built within a radius of 15 km from Martano, where our headquarters and showroom are located," indicates Lucia Rescio. "One site performs metalwork operations, from laser cutting to robotic welding. Another one is devoted to the processing of PVC for fabrics. The headquarters in Martano deals with aluminium processing, powder finishing, packaging, and shipping. Finally, we have a woodworking factory for manufacturing the wood components required for some custom projects." In fact, flexibility in the production of the different components allows each part to be adapted to the specific needs of each end customer, offering extremely functional solutions that do not sacrifice aesthetics. Sprech's flagship products include canopies, which combine the strength of steel or aluminium load-bearing structures with the flexibility and lightness of textile materials; gazebos capable of meeting all the needs of the public and private sector; tensile structures and marquees for fitting out large areas; and the pergolas from the QBox line, the ideal solution for creating continuity between indoor and outdoor environments, with steel uprights for covering large areas or minimal aluminium uprights for covering small spaces. "With such a variety of products and very often working on customised projects, the manual

powder coating plant in use until last year could no longer meet our quality requirements nor our constantly increasing production volumes," notes Lucia Rescio. "In 2021, therefore, we started working on the project for a new coating system, which we wanted to be automatic and very flexible, as well as able to process both steel and aluminium since it had to treat all Sprech's metal components.

"We assessed several painting plant manufacturers and engineering firms: Euroimpianti presented us with the best performing turnkey solution, in terms of both coating quality and plant sturdiness. The system is indeed both robust and flexible, and the fact that it is equipped with a power&free conveyor – for which we chose to rely on the know-how of Futura Convogliatori Aerei – allows working to order without any loss of productivity. At Sprech, we coat not only our products' profiles, but their entire structures complete with accessories, coupling plates, and other components. Our customers can choose from the forty colours in our catalogue, five of which are exclusive to Sprech, at no extra charge or select a customised tint, for which we guarantee a lead time of no more than ten to fifteen days from ordering."

A flexible, automatic system performing ultra-quick colour changes

The new coating plant designed, built, and installed by Euroimpianti was part of an investment in Industry 4.0. It is equipped with Wagner application technology and Futura Convogliatori Aerei power&free conveyor. "The combination of technologies and expertise brought into play by these partners has enabled the creation of a "smart" coating plant that guarantees maximum quality and functionality. It consists

of high-tech machinery with automatic control even of the individual components' maintenance process: overhead conveyor, pre-treatment tunnel, drying and curing ovens, and powder application booths. Speed and quality are guaranteed for every order. Moreover, the whole system is optimised for energy saving," says Alessandra Ripa.

Futura's electronic power&free overhead conveyor has a capacity of 1000 kg per load bar. The spray pre-treatment tunnel for galvanised steel and aluminium is made of stainless steel and is equipped with automatic doors to contain the heat in all hot-temperature phases, i.e. cleaning, drying, and curing, with a view to energy saving. The pre-treatment cycle includes ten stages in specific and separate cells for aluminium or galvanised steel. It starts with profile degreasing, deoxidising, acid degreasing, and rinsing with mains water to remove metal residues. It then continues with an additional rinse and the application of the nanotechnology surface conversion product based on titanium salts, which guarantees a corrosion resistance value of over 1,000 hours in compliance with the ISO 9227 standard.

After pre-treatment, the conveyor takes the load bars to the drying oven at 150 °C, followed by a visual check by the quality officers in order to verify the correct and uniform treatment of parts. Once they have left the drying oven, the load bars are sorted between the two Wagner booths in order to



The Wagner automatic powder application booth.

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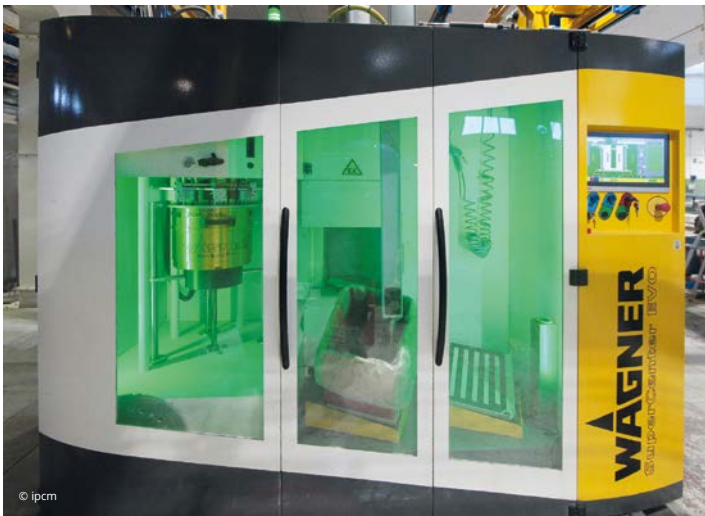
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optimise the process. One booth is automated and equipped with a “smart” gauge reader capable of detecting the size and shape of workpieces in order to correctly trigger the eight automatic guns, which move closer or further away depending on part geometry. This booth includes a manual post-finishing platform to avoid even the smallest imperfections and a SuperCenter EVO powder centre for quick and reliable colour changes through highly automated, contamination-free operations. Equipped with sensors for data acquisition, this powder management unit sends the user statistics on various production data, such as powder consumption. “Within one working day, we are able to change fifteen to twenty different colours in just 6 minutes and with one operator,” emphasises Lucia Rescio. “Although it is a very quick colour change, it guarantees effective cleaning. Since the start-up of this plant, we have already recorded significant powder savings, thanks to a 90% overspray recovery rate.” The second booth is manual and it is used for primer application, should the customer require a two-coat finishing cycle, or for painting small batches or with non-standard colours.

After coating, the parts are transported to the curing oven, where they dwell for about 25 minutes at 180 °C, depending on the type of paint applied. Then, they are placed in a cooling area before proceeding to the packaging area prior to shipping to customers.

Industry 4.0 at the service of the architecture sector

Every single phase of the coating process is monitored through Industry 4.0-oriented management software for greater manufacturing efficiency. All the machines that make up the plant are interconnected, have preventive and predictive maintenance functions, and track all the working parameters of every batch loaded onto the conveyor. “Considering the parameters of efficiency, coating quality, and production flexibility, we can say we are extremely pleased with the choice of installing this system and especially with the selection of the technical partners that collaborated on its implementation,” states Sprech founder Pasquale Rescio. “The new coating plant is an integral part of the evolution process that Sprech is pursuing to put customer satisfaction at the heart of all its production stages.”

From top:

- The Wagner SuperCenter EVO powder management unit.

- The SuperCenter's paint feeding system.

- Antonio Cimenos, the sales representative of Euroimpianti, Wagner, and Pulverit for the Puglia region, with Lucia Rescio from Sprech.