



AluCoating Perfectly Tunes in to its Paint Supplier to Manage Small Batches and Prove to be an Italian Coil Powder Coater of Excellence

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Two companies with the same customer-oriented vision are paving the way for the development of new plant and aesthetic solutions in the field of coil powder coating: AluCoating, a company extremely dynamic and flexible specialising also in the production of small batches of pre-painted aluminium, and powder coating manufacturer Stardust have created an innovative synergy that goes beyond commercial partnership.

In the urban landscapes that we cross every day, we frequently get the chance to lay our eyes on particular structures that differ in shape and colour from conventional buildings: they are characterised by the alternation of different geometries and the aesthetic impact of their cladding is obtained through original colour effects. Its shape and tint are a building's calling cards, which make it easy to assess whether

its architectural design has been able to integrate seamlessly into its surroundings.

Thanks to its endless customisation possibilities, one of the architectural elements that is becoming more and more popular in the building industry is pre-painted metal, which is increasingly used in cladding, façades, doors, and windows for its aesthetic and functional



The new façade of the San Gerardo Hospital in Monza is made of AluCoating pre-painted panels coated with Stardust powders.

performance, especially in terms of thermal and acoustic insulation. However, today's designers also demand an almost unlimited range of colours and effects to coat it.

"When I started working in the coil coating industry some thirty years ago," says Paolo Di Massimo, one of the world's leading experts in this field and the owner of AluCoating Srl, a company specialising in the powder coating of aluminium coils, already visited by our editorial staff in 2012¹, "we used to apply about a dozen of colours. Now, a company with a customer portfolio as large as ours may have up to 500 ready-to-use tints in stock. Each shade also comes with a number of different finishing effects, which means that the colour range offered is very diverse. The speed at which aesthetic and architectural trends change

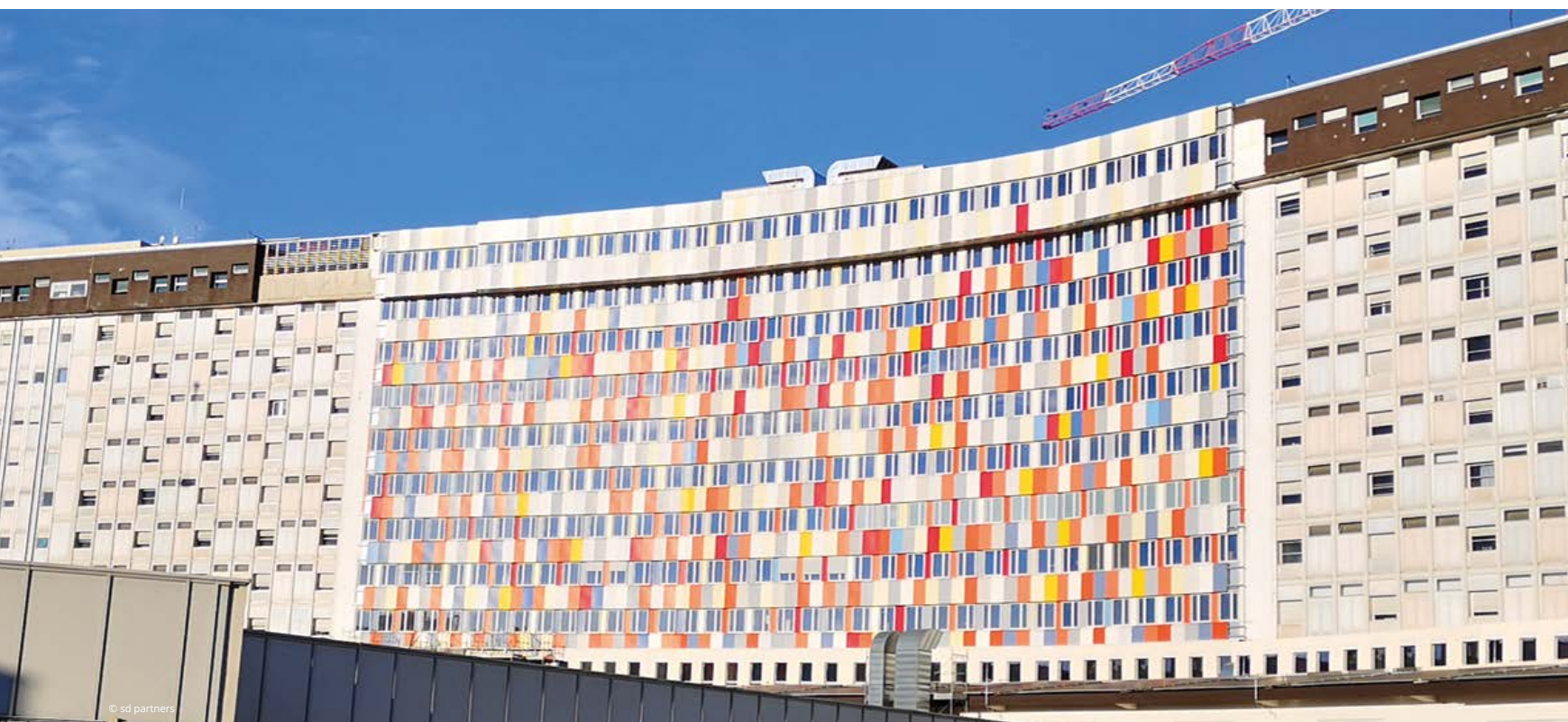
¹ F. Stucchi, "AluCoating: A new company to meet the growing need for pre-powder coated aluminium," in ipcm® International Paint&Coating Magazine no. 16 (July/August 2012), Vol. 3, pp. 48-56.
<https://www.ipcm.it/en/open/ipcm/2012/16/54-62.aspx>

is another significant factor: currently, for example, architects tend to prefer matte and textured colours that recall natural materials. Meeting the most diverse and complex requirements of architects, designers, and specifiers is our greatest challenge." 90% of AluCoating's production is intended for the window and door, curtain wall, and cladding sectors.

"We wanted to specialise even more in the coil coating sector, by integrating the most innovative technological solutions, and to create a company structure that's was able to handle small and very small batches of colour, in order to meet the demands of such a complex market. This is why we have set up a production system equipped with ad hoc plants, which is still being implemented and improved. As for the choice of paint products, we have established a partnership with Stardust Powder Coatings Srl, a company based in L'Aquila (Italy) that formulates and produces powder coatings even in small



From right to left:
Stefano Rota and Paolo Di Massimo from AluCoating, Alessia Venturi from ipcm®, Maria Contrini from AluCoating, and Guido Pozzoli from Stardust.



Design-wise, the differently coloured panels recall the outline of the Resegone mountain, hidden from the view of the city's inhabitants by the imposing structure of the new hospital.

batches on order, offering a rapid and accurate customer service even in the case of very limited quantities.”

Producing small and very small batches proves to be the winning choice

“One of the most critical issues in our sector,” explains Stefano Rota, the Sales Manager of AluCoating (Corzano, Brescia, Italy), “is the need to equip one’s own factory with the means to meet the most complex

requests, including colour matching between a coil and the aluminium profiles and frames already chosen for a building. In order to achieve this goal, AluCoating is equipped with a modern continuous-flow powder coating plant for aluminium coils and a line for flattening and cutting sheet metal to size, which we deliver to distributors or, more rarely, directly to users. It also has an advanced laboratory capable of developing any colour requested by our customers together with our paint supplier. We have found the perfect partner in Stardust, because



The station for the loading of blank coils on the decoiler.



The outside of the pre-treatment line.



A bird's eye view of the continuous-flow powder coating plant.



The powder management unit with an integrated ultrasonic sieve and dense phase powder transfer pumps.



SOLUZIONI ROBOTIZZATE DI ROBOTIC PAINTING SOLUTIONS VERNICIATURA

it is one of the few that gives us the possibility of purchasing the exact quantity of paint we need, even if it is a limited batch, and always delivers it in the shortest possible time. This enables us to meet our customers' deadlines without any limitations."

"We have been working with Stardust for three years now," confirms AluCoating laboratory manager Maria Contrini. "Together with its lab, we have already developed several colours. We are currently formulating new tints with special effects, including the textured one, particularly popular in France and Germany – which, together with the Italian market, are our main target markets. However, we do not focus on aesthetics alone: our materials have to be highly flexible, in order to adapt to the post-forming processes carried out by our customers, and the same applies to their coatings. In collaboration with Stardust, we are therefore developing products with improved mechanical characteristics that do not compromise the aesthetic result of finishes in terms of both opacity and colour. We aim at formulating coatings that outperform the market requests, thus making AluCoating able to preempt its customers' needs."

Maximum control of each process step

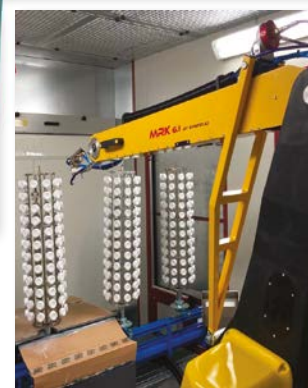
All raw materials and pre-coated coils or sheets undergo rigorous mechanical and chemical tests. "Our tests on incoming raw materials involve both aluminium and coating powders," indicates Contrini. "This avoids the risk of unpleasant surprises during production. When we receive the materials, we can already predict what the final effect on the finished products will be. We then carry out further tests after each step of the pre-treatment process, which includes fluotitanation and fluozirconation operations and with which we guarantee the high corrosion resistance of our products, as certified by a Machu test.

"As for the mechanical tests, we carry out stress tests on the painted sheets, as well as destructive bending, impact, and deformation tests and adhesion tests. Finally, we check the colours for compliance with European specifications and our own internal standards and we verify the absence of any surface defects.

"One of the elements that characterises us is the careful management of our entire production process. We follow our products from the arrival of the raw materials to the dispatch of the coated coils, and even after delivery to the customer by providing product certificates. Our company is ISO 9001, 14001, and 45001 certified, so that we can assure our stakeholders that we follow precise, standardised procedures in production."

Shared projects

Di Massimo adds: "We coat our coils with Class 1 and 2 polyester powders with premium performance in terms of weathering



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The two quick-colour change, movable booths.



The detail of the coating guns mounted on the reciprocator.

resistance. Their only limitations are related to the mouldability and elasticity of the film."

"We are now focussing on Class 2 products, particularly in the super matte range," notes Stardust CEO Guido Pozzoli. "We chose to improve the mechanical characteristics of this type of paints based on the current trend among architects and specifiers towards special tactile effects, which is now surprisingly spreading in the automotive industry as well. Stardust manufactures powder coatings in compliance with both traditional aesthetic standards such as PANTONE and RAL DESIGN and more recent ones, such as NCS. In particular, we have recently established a partnership with the developers of the NCS colour system, which is based on a logical method of sorting the entire colour spectrum and identifying each tint with a special code. The possibility of using an unambiguous language that leaves no room for errors or misunderstandings and of choosing from a greater variety of colours are significant benefits for users. In fact, in the last three years, we have noticed a progressive increase in demand for NCS colours in the construction sector, even in a country like Italy, particularly attached to its manufacturing traditions."

Harmonising with one's own powder supplier

AluCoating and Stardust have been working together for a long time to achieve the same goal and they have created an almost symbiotic relationship that goes beyond a mere commercial partnership, strengthened by the similarities between these two companies. "Our approach to the market in terms of fast and accurate service," emphasises Pozzoli, "is one of the aspects we have in common: working on orders with small and very small batches means speed is definitely a strength. Our two firms work symbiotically because they are aligned and this contributes to a mutually satisfactory partnership."

"The most appreciated features of our pre-painted coils," states Di Massimo, "include aesthetic performance durability and batch homogeneity: it can happen that a distributor keeps its panels in stock for a long period of time thus running the risk that, when they are used, architectural elements coated in the same colour may look different due to colour changes. The colour development study we carry out together with Stardust ensures that this does not happen on our coils."

Optimising the powder coating of coils

"In order to achieve excellence, we have found the right balance between powder quality and plant equipment," states Di Massimo. "Our coating plant is designed to apply seven to ten colours per day. The two booths' technology and the integration of accumulators that allow the coils to be removed even if they are not finished are the key to the efficiency of our production system. We have also optimised the coil unloading phase: this is usually an underestimated aspect, but it has a major impact on production management."

"Another factor we have been working on," says Rota, "is the programming of our workflow according to the requirements of the batches to be painted. Thanks to our two Gema Europe MagicCylinder® booths, which are movable and guarantee quick colour change operations, we can perform a continuous-flow process without the need to stop the conveyor belt and unload the batches in the oven. We have perfected two colour change procedures: one involves moving the booths with the coil in motion, whereas the other is based on the application of an 'insert', i.e. a small service coil that is about 35 m long which is recovered and used several times; with both methods, we can change colour in one minute."

For about four years now, AluCoating has been using the nitrogen-based paint application system patented and distributed by Eurosider (Grosseto, Italy). "Since we work with flat sheet metal," explains Contrini, "this choice was motivated not by the need to improve penetration, but to reduce our powder consumption and to break free from the influence of the environmental conditions. Finally, we integrated a device called coatmaster® for checking the thickness



The Eurosider nitrogen-based coating system.

The GSB-project seal for coated aluminum.

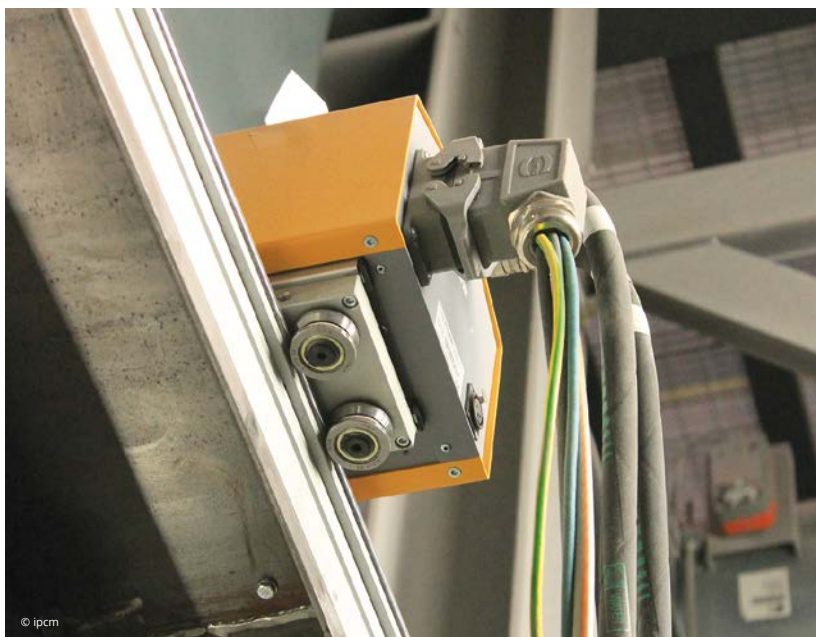
GSB: Quality and safety for coatings of aluminum components.

Added value for builders, architects and metal workers.

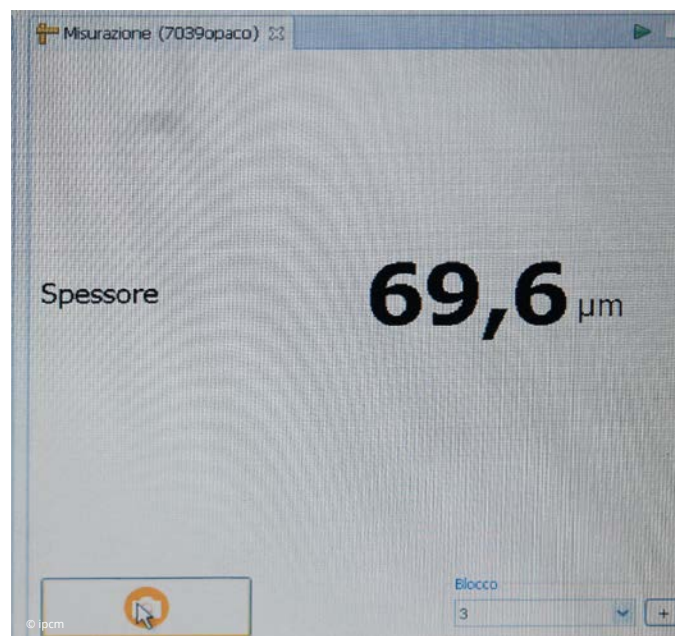
The new GSB-project seal contains all required quality statements

- Pretreatment
- Coating Material
- Coater

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coatmaster® measures the coatings' thicknesses before curing.



Detection of the applied film's thickness.

of the coating layers before curing and we are currently installing a system to label each product so that important information such as the coils' number and processing data can be written on their back.

Innovation in the future of pre-powder coated coils

"One of the most critical issues in the powder coating of coils," says Di Massimo, "is the difficulty of obtaining application consistency due to the point geometry of the powder dispensers, although they maintain its oscillating movement of the flat sheet. Finding a different application solution would expand the number of fields in which pre-powder coated coils can be used." Finally, the AluCoating team is developing a way to improve the anti-corrosion characteristics of aluminium. "We are trying to improve the corrosion resistance rate of the aluminium by applying an oxide flash in the pre-treatment phase. The results are very good from a chemical point of view, but we need

to improve the mechanical aspect. We are currently developing a prototype able to apply the oxide layer with the coil in motion, i.e. without immersing it in the tank."

"Regarding Stardust's commitment to the coil coating field," states Pozzoli, "our laboratory will devote the rest of the year to optimising the formulation of our powders in order to achieve greater resistance to weathering and chemical aggression. One of our goals is to introduce bonderised coatings also in the field of coil powder coating, with the performance degree of liquid coatings. Indeed, the real challenge is to formulate bonderised coatings with high post-forming mechanical strength."

All of this will certainly help the upcoming revolution in coil powder coating to further contribute to providing architects, designers, and specifiers with the endless possibilities of colour choices they are increasingly demanding. ○