



Resilient Contracting: VP Verniciatura Continues to Invest and Relies on Pre-Treatment Nanotechnology to Obtain International Quality Certifications

Monica Fumagalli **ipcm**[®]

VP Verniciatura is a coating contractor that has always been able to be one step ahead of the ever-changing market trends and that has managed to overcome the current difficult situation with some significant investments. Its resilience is reflected in the approach of DN Chemicals, a company specialising in the supply of pre-treatment chemicals that can compete with the large multinationals in the sector thanks to its expertise and eco-sustainable innovations.

“Resilience”, the ability of any material to absorb shocks without breaking, is a term that has long since entered the everyday language to indicate someone’s ability to face and overcome traumatic events – and now more than ever has it spread throughout the Internet, newspapers, and television. Nowadays, for a medium or small business, being resilient does not only mean overcoming the difficulties related to daily work, customer relationship, and product quality, but also being as versatile as possible to quickly respond to changing market demands. This has precisely been the winning strategy of VP Verniciatura (Ponzano Veneto, Treviso, Italy), a coating contractor specialising in the treatment of large-sized parts, in order to achieve significant results. “My father, Daniele Bellotto, founded our company in 1997,” says Andrea, the current CEO of the firm. “At that time, we had an area of 1,500 m², one

VP Verniciatura (Ponzano Veneto, Treviso) specialises in the surface treatment of large-sized products.



The VP Verniciatura's factory.

coating plant, and eight employees. Our factory now covers an area of 30,000 m², of which 15,000 are covered, it is equipped with five plants of a considerable size, and it has fifty-eight employees." The pride of having reached such an important milestone emerges in Bellotto's words while describing the last few years: "Our main goal has always been to spread the culture of quality painting, as well as offering resistant, durable coated products. Our perseverance has been rewarded: we are the second Italian company to have obtained the QualiSteelCoat certification, the international quality mark for coated steel. We have achieved this objective thanks to the implementation of the pre-treatment nanotechnology provided by Kemmex, recently merged into the DN Chemicals Group, which specialises in the supply of solutions for all surface pre-treatment, nanotechnology, water treatment, and paint stripping processes."

Five treatment lines for different types of materials and products

"We perform coating and finishing treatments on different types of materials," says Bellotto, "such as steel, aluminium, galvanised iron, black iron, and COR-TEN® steel. We treat a wide range of parts, such as components for ACE ladder machinery, large outdoor structures, railings, perforated sheets, gates, and architectural structures. This means that we coat products finding application in several different sectors and contexts: from design and architecture to metalwork and door frames, from the agri-food and naval industry

to the construction and agricultural sector. We are able to meet the requests of our customers thanks to five large-sized systems. The liquid coating plant has a footprint of 9 x 3.3 x 2.4 m, the three powder coating machines of 10.8 x 3.3 x 2.4 m, and the current sandblasting system of 15 x 2 x 1 m. However, a new, larger plant is going into operation in May 2021; it will be installed in a building devoted exclusively to this process."

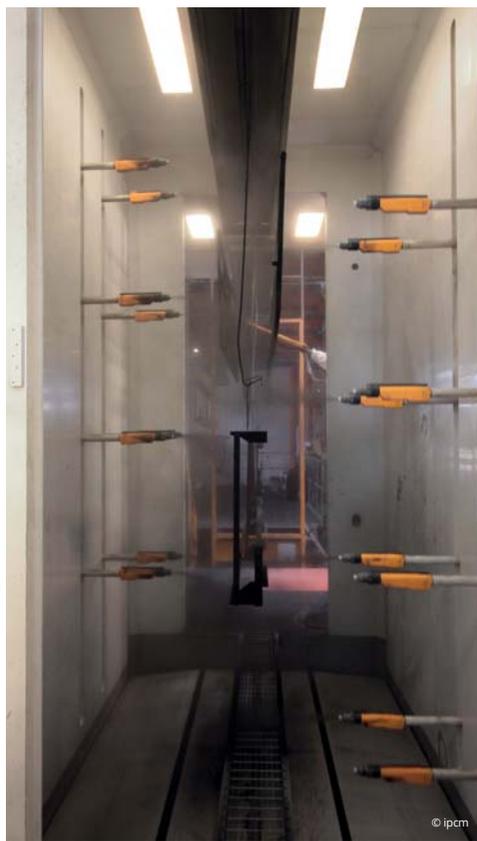
VP Verniciatura has chosen to equip itself with the most advanced coating systems, able to guarantee uniform application and adequate penetration even in the corners and profiles of the most complex-shaped components. "We have always paid great attention to the phases that precede and follow the treatment: we always store the products in covered areas in order to protect them from any external aggression and we label them to ensure total traceability. Another factor that guarantees the quality level for which we are well known at the regional and national level are our last-generation curing ovens: these ensure uniform treatment by automatically identifying thicknesses and materials and adjusting the cycle time accordingly. In this way, we give greater resistance and colour quality to the products we deliver to our customers."

Nanotechnology pre-treatment: a strategic factor for quality certifications

VP Verniciatura performs both a mechanical and chemical pre-treatment process. The first one takes place by shot peening with



The inside of the pre-treatment tunnel.



The inside of the automatic coating booth supplied by Gema Europe.



Manual touch-up of coated workpieces.

metal grit and silica sand. The second one is carried out in two different plants depending the material to be treated. "We integrated nanotechnology into our workflow about three years ago," explains Bellotto, "when we contacted DN Chemicals to solve a problem related to the pre-treatment of galvanised sheet. They suggested replacing the phosphodegreasing process, which was not providing our required quality results, with phospho-pickling. The solution proved excellent and we have since chosen DN Chemicals as our sole supplier of pre-treatment products. We collaborate closely with their technical staff, always available to offer professional on-site assistance, and with their laboratory, where we carry out our salt spray resistance tests.

"I can say that this is the technology that best reflects our way of understanding work. The use of nanotechnology prior to coating guarantees perfect cleaning of surfaces, thus protecting them from oxidation and increasing paint adhesion. This slows down the corrosion process of metals, improves film penetration, and gives unparalleled strength and elasticity to coatings, thus significantly increasing the weathering resistance of our treated parts. Ever

since we started using DN Chemicals' pre-treatment products, we found a decisive qualitative improvement, which has enabled us to increase our treatment's salt spray resistance guarantee from 250 to about 500 hours. This was a key step to obtain the QualiSteelCoat international quality certification for coated steel. Currently, VP Verniciatura is the only Italian company to hold this certification for four corrosion categories on three different substrates."

"Our nanotechnology products," states Gianni Zilli, area manager at DN Chemicals, "are used in two plants with different characteristics. The one-chamber system performs continuous rinsing and a final nebulisation phase with a solution constituted by zirconium salts, surfactants, and correctors. The tunnel plant with a two-rail conveyor, on the other hand, can carry out two different initial phases depending on the material type. Iron and pickled sheet metal, from which it is easier to remove impurities, undergo a phosphodegreasing treatment; galvanised sheet, especially if passivated with trivalent chromium, and steel with residues of processing and storage oils are subjected to acid phospho-pickling. Both treatments are followed by two rinses, one with mains water and the other with demineralised

water with a conductivity of less than 30 μS , in order to completely remove non-anchored treatment salts without leaving any saline deposits on surfaces. A chromium-free, no-rinse, fluorescent zirconia-based nanotechnology passivation phase follows to deposit a thin layer of zirconium fluoride with a thickness of 0.5-0.6 μm and with excellent chemical anchoring properties, necessary to improve corrosion resistance and paint adhesion."

Characteristics of the coating systems

As for powder application, the Venetian company uses one-coat, two-coat, and cataphoresis + powder coating systems. "Before the products enter our coating plants, we seal and mask the parts to be protected," notes Bellotto. "In some cases, we just electrostatically apply thermosetting powder enamel with a brilliance of 20 to 90 gloss. For our two-coat cycles, we apply a zinc primer followed by a gelling stage in a forced-air oven for 15 minutes at 180 °C, the application of a thermosetting polyester powder, and a curing step in the oven. Finally, our customers can opt to replace the primer application with a cataphoresis process. With the two latter systems, we are able to achieve salt spray corrosion resistance values of no less than 970 hours."

Bellotto's satisfaction with the nanotechnology pre-treatment

and, in general, the collaboration of DN Chemicals is evident in his words: "When there is a combination of forces aimed at achieving a common goal, excellent results can be obtained. Our achievements were guaranteed by both parties' ability to quickly adapt to market needs. On the one hand, DN Chemicals has found the right solution for our processes; on the other hand, our team has been able to manage the resulting production flow at best by adapting from time to time to current trends, with professionalism and passion. This has resulted not just in the improvement of our process quality level, but also in the reduction of our environmental impact and, in general, in excellent collaboration, as their support team is very helpful and their lab is always looking for innovative solutions that can facilitate their customers' work in terms of both process management and consumption."

The reduction of process temperatures

"One of our next steps," indicates DN Chemicals sales director André Bernasconi, "is going to be the implementation of pre-treatment processes at a lower temperature than conventional cycles, as is already happening in VP Verniciatura's factory, until reaching room temperature (about 20 °C). These latter treatments are already used by some companies and they have aroused the interest of many



Parts in the drying oven.



Products in different colours and sizes treated by VP Verniciatura.



VP Verniciatura's passion for colour can be seen even in the smallest details.

others. The potential of this innovation is significant especially for some pre-treatment processes carried out on materials that are not heavily contaminated by oils, calamine, and other difficult-to-remove pollutants. The technologies required are already available and used in an increasing number of plants. However, it should be emphasised that low-temperature processes are not always usable and that, in any case, a careful preliminary assessment is needed. On the other hand, all the conversion nanotechnology cycles of the DOLLOCOAT SA series have always been utilised at room temperature and they do not produce any type of process sludge."

"This is exactly what I mean when I talk about resilience," states Bellotto. "It is not only about overcoming a difficult situation, but also about the ability to quickly adapt to new market needs by focussing on innovation and investing in the future. This is why VP Verniciatura, which never stopped even during the national lockdown period, keeps on investing in human resources, systems, and technologies to continue its growth path." 



Components ready for shipment.



The Bellotto family at the helm of VP Verniciatura. From left to right: Edoardo, Daniele, and Andrea.