



New Shot Blasting and Coating Plants Confirm Cos.Eco. as a Company of Excellence in Southern Italy

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Being a Southern Italian firm of excellence means combining innovation and sustainability in increasingly high-performance products. This article presents the success story of Cos.Eco., based in the Apulia region, the fourth company in Europe for the production of environmentally friendly vehicles. It chose an OMSG shot blasting machine to optimise substrate preparation and ensure greater adhesion and durability of its coatings, which it applies in a new Savim system, also improving work comfort for its employees and the sustainability of its production processes.

According to the figures recently updated by the European Parliament, 2.2 billion tonnes of waste are produced within the EU every year¹. Municipal solid waste, i.e. waste generated every day mainly by private citizens, then collected and treated by municipalities, accounts for more than a quarter, about 27%.

According to the report, "From 2018 to 2021 the average amount of municipal waste as measured per capita increased in the EU. However, trends can vary by country. [...] Even though the waste generated per capita has increased, the way we manage waste has improved - with more recycling and composting and a decrease in landfill." In fact, one of the EU's circular economy objectives is to promote not only waste prevention but also the reuse of products whenever possible, with a focus on recycling, composting, and incineration.

¹ <https://www.europarl.europa.eu/news/en/headlines/society/20180328STO00751/waste-management-in-the-eu-infographic-with-facts-and-figures>

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The same increasingly sustainable approach characterises the sector of vehicles for the collection and transport of urban solid waste. Giuseppe Debernardis, the sole director of one of Italy's national and international leading manufacturers of municipal waste transport vehicles, explains: "Cos.Eco. Industrie Group Srl specialises in the design, construction, marketing, and after-sales technical assistance of equipment for the collection, transport, and disposal of municipal solid waste, such as compactor trucks, dumpers, and bin washers. Since 2015, we have been carrying out every necessary design, raw material processing, assembly, and coating phase in-house, including testing of each individual product, within a complete, fully integrated, and environmentally friendly production cycle. "Our vehicles must convey an idea of cleanliness and sustainability even in their aesthetics, which is why our substrate preparation and actual coating operations are particularly strategic. This is also the reason why in a manufacturing flow like

Cos.Eco. Industrie Group Srl specialises in the production of equipment for the collection, transport, and disposal of municipal solid waste. Below, the new paint shop, with the OMSG shot blasting machine on the right and the Savim coating plant on the left.





this, when the surface treatment phase turns into a bottleneck, the problem must be solved with extreme urgency." Indeed, about a year ago, Cos.Eco. completely renovated its paint shop by equipping itself with a new automatic shot blasting machine, designed and installed by OMSG - Officine Meccaniche San Giorgio (Villa Cortese, in the province of Milan, Italy), and a new coating system supplied by Savim Europe Srl (Arbizzano, Verona, Italy).

Cos.Eco.: a success story from Southern Italy

The story of this flagship company in Apulia's Murge area started with the entrepreneurial idea of two men: Nicola Farella and Donato Debernardis, who founded DI.CAR. in Altamura in the 1970s as a manufacturer of transport equipment. At the beginning of the 1980s, after a serious setback due to the 1981 earthquake that brought companies in Lucania to their knees as they were no longer able to meet any payments due, Nicola Farella decided to focus exclusively on the production of municipal vehicles, including compactor trucks, street sweepers, and school buses. "In that same period," says Nicola Farella himself, recently appointed Cavaliere della Repubblica for his professional and social commitment, "we decided to sell the entire fleet of trucks we previously used for transporting goods and to establish Cos.Eco. Costruzioni Ecologiche Srl, later moving our headquarters from Altamura to Grumo Appula. Here, we eventually abandoned the

transport sector to devote ourselves entirely to the production of ecology equipment."

"Through continuous technological innovation and the utmost care taken in every process step," adds Farella, "we have succeeded in establishing ourselves also at the European level, despite being based in a complex area such as Southern Italy, characterised by numerous resources but also still with some gaps to fill in terms of industrial development. And Cos.Eco. has certainly contributed to the growth of this area, fostering the creation of numerous companies revolving around our business and providing numerous jobs. Currently, we have 110 employees working in our 44,000-m² plant. We are present in 40 countries, from the closest markets such as Northern Europe, Spain, and the United Arab Emirates to more distant ones such as South Africa, Singapore, and New Zealand. We have built our leadership over time thanks to technologically advanced machinery, specialised personnel, and the attention that our company has always paid to its customers all over the world."

"To guarantee a high quality level of products and services," indicates Debernardis, "we have obtained both the ISO 9001 and ISO 14001 certifications, which, in addition to product quality, verify the organisational structure of the company itself also in terms of effective management, especially with regard to the most significant environmental aspects. Further certifications attest to the quality,



mechanical, and technological characteristics of the materials we employ, such as for example Hardox, one of the most abrasion-resistant steels, and S355 and S275 carbon steels."

A fully insourced production cycle

"Given the difficulty of finding contractors in our area but also for greater control of our production flow, we have insourced all our production phases, from the machining stages such as cutting, bending, and welding to the surface treatment ones, that is, shot blasting and coating," explains Farella. Before mechanical pre-treatment, the parts are cleaned manually with a high-pressure cleaner to remove machining oils and the different materials deposited during welding. "Thanks to this cleaning operation," notes Debernardis, "we also preserve the quality of the grit, which remains cleaner and can thus be recovered. To achieve our specified surface roughness profile, we use angular steel grit."

From the left:

- The treated workpieces can have a length of up to 11 m.
- Overview of the shot blasting system.

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A component entering the shot blasting tunnel and a side view of the shot blasting plant, with 4 of the 16 single-disc turbines.

The new OMSG automatic tunnel shot blasting machine was installed about a year ago to solve a production bottleneck. "We used to carry out a manual mechanical pre-treatment operation, which was burdensome for our employees in terms of both handling, due to the weight of the large components, and application, because it required their physical presence inside the blast chamber. Now, we carry out manual shot blasting operations only on smaller parts and we use our automatic machine to pre-treat products such as semi-trailers, with dimensions up to 11 x 2.5 x 2.5 m."

The workpieces' surfaces are then blown and the grit is recovered. Afterwards, the parts reach the coating plant, equipped with a manual static booth. "In this case, we ruled out automation because our components' conformations are too varied to be able to take full advantage of the benefits of an automated system. We apply high-solid liquid polyurethane paints in three coats using WAGNER spray guns. Our system consists of several stations for primer application, drying, sealing, and topcoat application, which is done in two coats. After application of the primer, sealing is carried out in a chamber that can be heated as needed to evaporate the solvent-based paint product or cure the sealant. This is in fact one of the most interesting features of the coating system designed and installed by Savim: its partitioning through

shutters allows us to heat individual zones to the required temperature depending on the operations we have to perform. Then, the workpieces reach the drying oven where they are left to dry, sometimes even at room temperature without the need for heating, thanks to the high temperatures typical of our area."

Features of the new shot blasting plant

The company selected an automatic shot blasting plant type Tunnelblast 2535/16 H26 C. "It treats parts with a maximum cross-section of 2.5 x 3.5 m," indicates Enzo Dell'Orto, the CEO of OMSG. "The system is equipped with 16 single-disc turbines featuring direct drive motors with a power of 7.5 kW each. The electrical panel is equipped with 16 inverters to control the rotation speed of the turbines and therefore the kinetic energy of the steel abrasive projected onto the workpieces. In addition to inverters, the shot blasting machine has special turbine feed valves, featuring a double pneumatic cylinder to regulate the flow of abrasive to the turbines. The overhead conveyor, which has an extension outside the plant of 12 m at the inlet and 12 m at the outlet, is equipped with a pair of hoists with a capacity of 6,000 kg each. We also installed a manual shot blasting cabin downstream of the tunnel to touch up any masked areas or undercuts that cannot be reached by the

direct impact of the abrasive projected by the turbines. Its size is 15 x 5 x 4.7 m. The simple blowing operations are also carried out inside the booth to remove the abrasive deposited on the pieces."

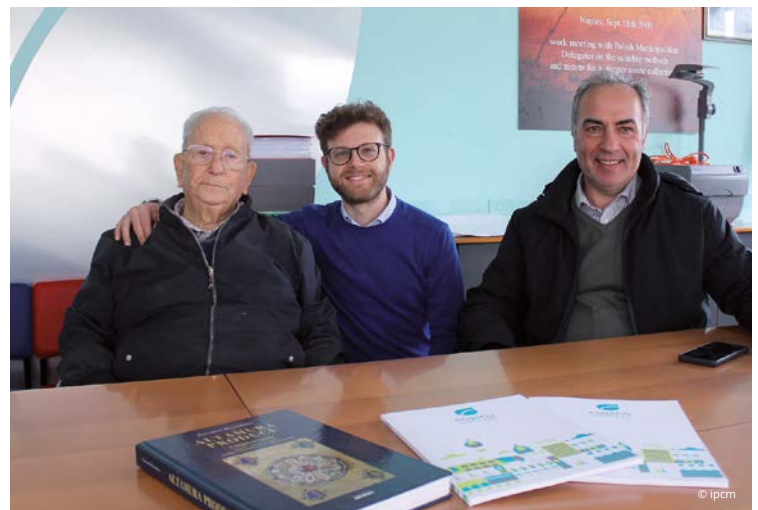
"The entire plant," adds Dell'Orto, "is Industry 4.0-oriented. The work cycle is managed by a PLC and the machine is equipped with sensors to control the level of metal abrasive in the separator and the rotation of the elevator's lower pulley, remote assistance devices, a bar code reader, and digital amperometric controls. Both the turbine shot blasting machine and the manual cabin are equipped with cartridge filters made with antistatic polyester cartridges and ATEX components, the former with a capacity of 20,000 m³/h, the latter of 7,500 m³/h."

The advantages of the new system combination

"One of the main benefits brought by our new mechanical pre-treatment plant," says Debernardis, "has been the reduction of our production times. Today we can produce two compactor trucks per day, as well as various components such as tanks made of welded steel or aluminium sheet and other smaller vehicles. The shot blasting operation takes 20 minutes, compared with the about 5 hours required by the previous manual operation. This is our first experience with an OMSG machine, but we can only be satisfied with it. At the same time as we upgraded the shot blasting department, we decided to build a new paint shop because the previous one only consisted of one booth where we applied both primers and topcoats. To do this, we turned to another well-established company with profound expertise, Savim. Relying on companies with a sound corporate structure is our precise choice to make sure that in the event of a plant issue of any kind, the solution will be quick and effective. For us, stopping the shot blasting or coating system means stopping the entire production cycle."



The inside of the manual blasting chamber (above photo) and the inside of the manual coating booth.



From top left, clockwise:
The WAGNER liquid paint management unit; A finished component; One of the garbage compactor trucks manufactured by Cos.Eco;
From left to right: Nicola Farella, founder of Cos.Eco, technical office manager Giorgio Casello, and Giuseppe Debernardis.

Conclusions

"More careful environmental waste management," summarises Debernardis, "is one of the targets the European Union has set for itself by 2050. The road is certainly one of the most difficult ones to travel, because modifying the collection methods used so far involves changing the mentality not only of private citizens but also of public bodies. But whatever the method chosen, Cos.Eco. is ready for it: in addition to the attention we have been always paying to the impact of our production cycles, for some time now we have been making electric vehicles available to municipalities, which are becoming very popular. We have also launched a new, patented solar-powered waste

compactor truck equipped with an internal weighing system, which cuts its costs and environmental impact while reducing noise and emissions to zero. This continuous search for innovative and environmentally friendly solutions has always characterised the history of our company and the entrepreneurial strategy of our founder, Nicola Farella. The search for innovative solutions also calls for collaboration with highly skilled, well-established companies, such as OMSG and Savim, with which we have updated and optimised our paint shop: today, coating has turned from a critical phase into one of our main production resources, enabling us to confirm ourselves as a company of excellence in Southern Italy." ○