# Officine Minelli: a new 24-metre coating booth for material handlers

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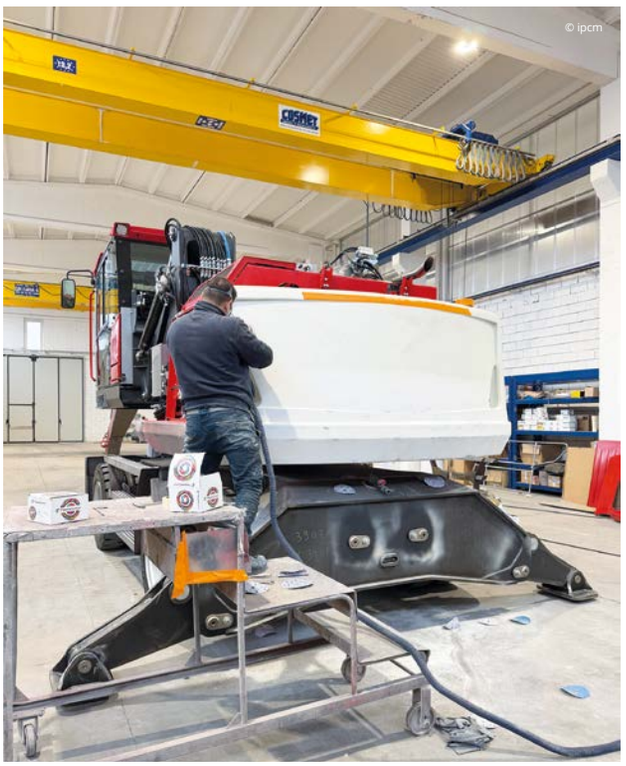
Officine Minelli's self-propelled, hydraulic material handlers.

**This Italian manufacturer of self-propelled, hydraulic material handlers has recently insourced its coating operations by installing a 24-metre booth and oven designed by Savim Europe. This investment marked a significant step forward, improving quality control and increasing production efficiency and speed.**

The Brescia area, and in particular the Val Trompia in northern Italy, has been of great importance to the metallurgical industry since the Middle Ages. The availability of iron ore, the abundance of woodland necessary for producing charcoal for the furnaces, and the numerous watercourses that supplied energy to smithies all contributed to the development of the first water-powered forges for ironworking. Thanks to these favourable conditions, Brescia soon became renowned for the production of iron tools, agricultural equipment, and objects. This tradition was firmly ingrained in the centuries that followed, especially during the period of the Republic of Venice (15th-18th centuries), when the region specialised in the manufacture of muskets and gun barrels. With the Industrial Revolution in the 19th century, Brescia further strengthened its position in the metallurgical sector, gradually expanding its production into steel. After the Second World War, the area became one of Italy's leading steel-producing


Savim Europe's coating booth, divided into three sections.




An operator preparing an Officine Minelli machine for coating.

hubs, largely thanks to the widespread adoption of electric furnaces using recycled scrap iron instead of ore.

This manufacturing model established Brescia as one of Europe's top steel-producing districts, and it was here, in the 1950s, that Officine Minelli was founded in Cazzago San Martino (in the province of Brescia) by four siblings who decided to set up a machinery manufacturing business. Initially, the company focused on the agricultural sector, producing machines for soil cultivation. Later, however, in response to the local market's needs linked to the expanding steel industry, it developed its first material handler for ferrous materials.

This advancement demonstrated the remarkable entrepreneurial flair of the Minelli brothers, who were able to anticipate market changes and steer their business towards new growth opportunities. In line with this innovative spirit, the company has recently taken another step forward with the installation of a 24-metre-long booth from Savim Europe Srl (Arbizzano, Verona, Italy), aimed at insourcing its machine coating process and enhancing quality control across its entire production.

## Officine Minelli's expertise

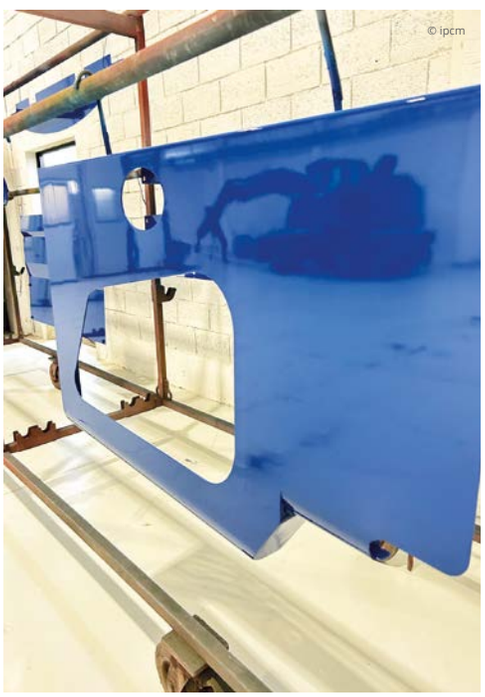
"We are a family-run company specialising in the manufacture of hydraulic material handlers designed to operate in harsh and particularly demanding environments," explains Roberto Fiorini, the director of Officine Minelli.

"Our product range is very diverse and comprises eight core models, from lighter machines weighing around 15 tonnes to larger, heavier ones up to 50 tonnes. Each configuration, however, is tailored to the end customer's requirements. Our main target market is Italy." The company manufactures approximately 80 to 90 machines annually. "One of the traits that sets us apart is our production model: we work exclusively on a made-to-order basis, avoiding the need to keep machines in stock and, at the same time, managing to provide highly customised products built to every customer's specific requirements."

Officine Minelli's technical department meticulously designs these machines in every detail. "Once the design phase is complete, we order oxy-cut steel from our qualified and trusted suppliers, which deliver semi-finished parts according to our technical specifications. At that point, we can begin machining and assembly. We perform all required machining, welding, and assembly operations on steel sheets in our in-house metalworking department," says Fiorini.

"Currently, some components are pre-painted before assembly, while the complete machines are coated afterwards." Until a few years ago, finishes were not considered a key process aspect or a significant machine feature in the scrap metal handling industry. This was due to the work environments where material handlers are used, such as collection and recycling centres, steelworks, foundries, or recycling facilities, which are


The Savim Europe booth in its entirety: it is 24 metres long and 6 metres wide.





A part of a coated handler's bodywork and the inside of the booth: the largest parts to be treated are lowered from above using an overhead crane.

characterised by harsh operating conditions that cause rapid bodywork deterioration. In recent years, however, operators have started to pay more attention to this aspect: machines must be functional, durable, and also aesthetically pleasing. "We place great importance on the quality of finishes. We aim to supply machines whose coatings offer high resistance to the elements, preventing colours from fading in sunlight and corrosion from developing due to rain and humidity. At the same time, in line with market demands, we also strive to meet increasingly high aesthetic standards." This is one of the reasons that led the company to insource the coating process, integrating it into its workflow. The goal was to ensure consistent and controlled quality, speed up the entire process, and give customers the opportunity to further customise their machines.

## A new in-house process: coating

"Until recently, we outsourced our coating operations to local body shops. The process was quite time-consuming in terms of logistics and quality control. Additionally, the steps involved in our coating phase are varied and fairly complex. For example, surface preparation depends on the initial condition of the sheet metal: in some cases, filling is necessary, while in others, it is possible to directly paint the workpieces. Handling all these activities in-house enables us to supervise every stage and determine how best to achieve each finish. We currently apply multiple coating layers to ensure the results meet the high quality standards we have set for our products," notes Fiorini.
"We allocated a hall exclusively for coating at our Cazzago San Martino plant and, at the same time, began searching for a technology partner capable of designing a bespoke solution that would meet our requirements. As we handle large-scale machine components, it was crucial to identify the most suitable configuration. Alongside Savim Europe, we managed to develop a booth with all the required characteristics," states Fiorini.

**The ceiling of the booth, with a filter deck fed by air-stream burners.**

Savim designed and installed a 24-metre-long, 6-metre-wide coating booth, specially built to be divided into three sections that can operate as three adjacent booths. “This layout allows Officine Minelli to use the booth in its entirety or in different configurations, dividing it into two parts of 16 metres and 8 metres or into three 8-metre segments. All sections can perform both coating and flash-off operations independently,” illustrates Francesco Scavini, the managing director of Savim.

Another distinctive feature of this plant is the 1.5-metre-wide and 16-metre-long pneumatic hatch on its ceiling, which allows access for taller components via the overhead crane. We have also installed hydraulic platforms running the entire length of the booth, enabling operators to move around and lift themselves up to reach the highest points of the machines being coated. Doors have been installed to divide the booth into three sections; these can be opened or closed as required to separate the different work chambers. After a thorough analysis of structural aspects, we were able to create a fully customised solution based on Officine Minelli’s requirements,” continues Scavini.

“The application of the two-component liquid paint is carried out manually using pneumatic technology: as these are large machines with particularly complex geometries, operators work both from the ground and on the three-axis aerial platforms installed on both sides of the booth, which can be raised to a height of up to 6 metres. For filtration and overspray abatement, the plant employs a completely dry technology. Hot air for drying is introduced from above via a




filter deck fed by air-stream burners, which also offer advantages in terms of energy efficiency: they burn 100% of the gas used and produce zero emissions of carbon monoxide and nitrogen dioxide.
"Dry filtration does not occur at floor level, so no foundation work was necessary. Instead, the booth is equipped with suction walls and external extraction units also fitted with dry filters, including fibreglass pre-filters with variable density and an additional acrylic filter, thereby ensuring compliance with all regulatory limits. As for the air flow rate, the booth handles a total of 170,000 cubic metres of extracted air compared to 155,000 cubic metres of supplied air. Savim also supplied the liquid paint preparation unit, fitted with ATEX-certified components, as are all the structural elements of the booth itself," says Scavini.

## A step forward in the company's production process

The solution developed by Savim has enabled Officine Minelli to further improve the quality of its material handlers. The goal was also to speed up lead times and produce around 8 machines a month while maintaining very high quality standards and continually enhancing the entire workflow. "Thanks to this new process and the technologies we have adopted, our material handlers feature a superior finishing level compared to what we previously achieved. For us, it is crucial to produce machines that meet user expectations, are reliable, stand the test of time, and encourage customers to keep choosing us because they are satisfied with our products. We are very proud of our material handlers, both for the hard work and dedication behind their production and because they carry a well-known reputation in the industry. We will continue to invest to achieve and maintain these results," Fiorini concludes.

**From top to bottom:**

**The filtration system installed on the booth's suction walls.**

**A coated hydraulic material handler.**

**A material handler with a matt finish.**