



AREES deals with products ranging from interior design and outdoor components to parts intended for environments in high corrosion classes, such as marine.



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AREES Improves the Quality of Its Products with the Introduction of a State-Of-The-Art Shot Blasting and Powder Coating Plant

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AREES - Area Edilfer Eurozinc Sardegna, a Group specialising in metal surface treatments, has expanded its range of services by investing in an innovative 4.0 shot blasting and powder coating plant supplied by Eurotherm (Volpiano, Turin, Italy). The system is composed of three booths, namely one for cleaning, one for shot blasting, and one for powder application, and a curing oven.



Overview of the Eurotherm shot blasting and powder coating plant.

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Inside the cleaning booth.



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AREES is a Group consisting of two companies, EDILFER and EUROZINC. It operates in the province of Nuoro, in the heart of Sardinia (Italy), and it has been producing high-quality fencing nets and fence posts since 1979, the year EDILFER was founded. Specifically, the two companies perform metalwork processes for the production of railings, gates, stairs, doors, gazebo

structural elements, and metal structures of the highest quality and surface treatments including phosphating, galvanising, and coating, respectively. "We started with a wire and wove it into a net, a strong and secure weave to protect people's property. We have come a long way but always maintained the same purpose: to protect – at the cost of defying challenging weather, which



The three water recovery tanks with no discharge to the sewerage system.



Inside the shot blasting booth, soundproofed to reduce the workplace noise level.



The powder coating booth.

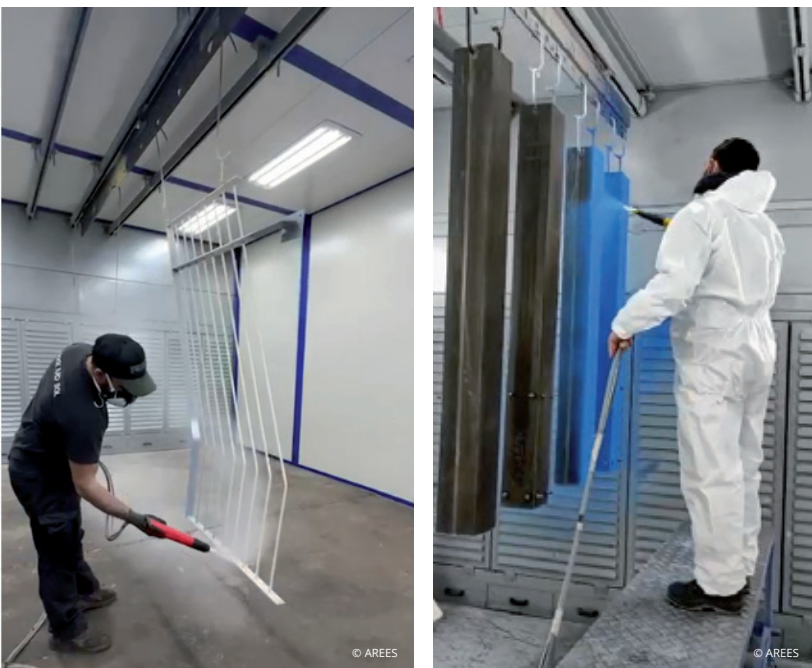
we do through a thin zinc coat. The mission to safeguard the work of others, which is also our own, is what unites the companies in our Group," states Michela Pinna, co-owner of AREES EDILFER-EUROZINC.

Over time, customers ranging from artisans to larger companies began to demand that its products meet additional requirements: resistance to abrasion and corrosion caused by the local weather and marine environment, as well as high aesthetic appearance. "This is why we founded EUROZINC, the second company in our Group, devoted to metal surface treatments. We established it in the early 2000s to operate in the hot-dip galvanising market and later expanded its offer with electrolytic galvanising, phosphating, and electropolishing services," indicates Pinna. Growing demand then called for a further upgrade of the services offered by EUROZINC, which decided to embark on an investment path to complete its range of surface treatment technologies.

One of the first projects was the installation of a water-based coating system in 2017, as up to that point the only painting operations had been sporadic and performed with solvent-based products. Later, and more precisely as of this year, the company also added a powder coating service with the adoption of a state-of-the-art plant.

The Industry 4.0-oriented powder coating plant

Equipped with two inlet and outlet storage areas for loading and unloading and an intermediate storage area, the manual powder coating line supplied by Eurotherm consists of a cleaning booth with a liquid recovery and reuse unit, a shot blasting booth with a local shot recovery device, a powder application booth, and a curing oven. They are all linked together by a motorised conveyor complemented by a lift station and connected through Industry 4.0 solutions. The manual cleaning booth takes care of part pre-treatment. As metal components can require pre-treatment prior to coating, it was decided to install this machine performing different cleaning cycles such as degreasing and rinsing even at high temperatures, with a "0 reject" water recovery system, i.e. no discharge to the sewer. Through three tanks, this system ensures that clean water is always available and can be reused in subsequent cycles, limiting water wastage. The new plant also integrates a shot blasting booth equipped with a local shot recovery unit consisting of an auger with scraping blades, which allows the operator to recover the abrasive for reuse. This reduces waste and guarantees a well-cleaned booth with full-capacity, completely safe vacuum cleaners.



Powder application on parts with different shapes and sizes.

The coating booth, finally, is the ideal environment for painting workpieces. It has a manual unit with a traditional Zeus Electrostatic Venturi system and a suction wall for air extraction and filtration, preventing the dispersion of powder. The last element of the new plant is the curing oven, designed to operate at temperatures between 180 and 220 °C.

The motorised overhead conveyor can handle several load bars at the same time and it is equipped with a lift station that facilitates the operators in the loading and unloading of workpieces without the aid of other equipment, improving ergonomics and safety.

AREES' most recent investment was also motivated by its willingness to take the factory to the next level of modernisation and automation. "We decided to invest in an Industry 4.0-oriented, interconnected plant to keep up with digital evolution, in order to automate and better control our business processes in terms of both quality and service," states AREES production manager Marco Lai. In fact, the company has embarked on a digitalisation project that does not only concern the new plant but the entire production department. Its aim is to integrate new manufacturing technologies to improve working conditions, raise productivity, and further increase quality. In addition, the new plant adopts IT tools that allow the machines composing it to provide the operators with real-time data on the status of the various jobs.

ZEUS



The coating line was designed according to the parameters of Industry 4.0.

Advantages

Such technologies undoubtedly bring numerous benefits. The first one is certainly the flexibility of the new system, which improves efficiency and quality because it can adapt its coating cycle to treat products ranging from interior design and outdoor components to parts intended for environments in high corrosion classes, such as marine. Two other relevant benefits are related to the factory's production capacity and layout. Thanks to the integration of four stations and a conveyor, the new plant can coat more parts than the existing liquid system, handling larger jobs while occupying less space. It can also powder-coat aluminium frames, thanks to the possibility of implementing a multi-metal pre-treatment process. This is particularly useful for re-coating parts or

treating very small batches.

Lastly, Eurotherm designed the system with an eye to some increasingly crucial technological aspects, such as the insulation of the oven to minimise heat dispersion, the soundproofing of the shot blasting booth to reduce the workplace noise level, and the handling and loading-unloading system conceived to allow the material to be easily moved by the operators. "We are pleased to have chosen Eurotherm as a partner. Our new plant has improved both the efficiency and capacity of our company, which can now carry out the full range of surface treatments our customers require. With a wide and comprehensive offer, we can manage our entire production cycle, up to the end products, within a single factory," concludes Lai. ●