



From Office Furniture to School Desk Components, the Growth of Etra Through Management 4.0

Francesco Stucchi **ipcm**[®]

Etra, a manufacturer of metal furniture components, opened to us the doors of its factory, organised entirely according to the criteria of Industry 4.0, and especially of its paintshop. Here, the implementation of a new WAGNER Powder Center EVO has sped up colour change-over times, thus increasing production, dramatically reducing powder disposal, and improving application quality.



The Industry 4.0 parameters are now widely applied within the manufacturing industry in general and the coating sector in particular. Etra, a company specialising in the processing of metal components and based in Maron di Brugnera, in the industrious Italian province of Pordenone, offers an excellent example of the benefits that the fourth industrial revolution has brought and can bring within a production site. Indeed, this firm has chosen to implement an innovative production management system that fully complies with the criteria of Industry 4.0. This has proved to be particularly crucial in coping with the production of 50,000 school desks, required as a part of the contract awarded by the Italian Ministry of Education to reorganise classrooms throughout the country so as to guarantee social distancing and counteracting the spread of the COVID-19 virus within school facilities.

Established in 2006, Etra initially served only one customer that accounted for its entire production, which was carried out in a small laboratory with the help of three employees. Nowadays, the company has 65 employees and a new headquarters on an area of 10,000 m², of which 4,000 are devoted to metal machining and 6,000 to logistics and coating. Besides this special production of school desks, Etra is a well-established supplier of structures for desks, partitions, and steel and aluminium components for prestigious brands in the office, kitchen, living, and bathroom sectors.

Its exponential growth started in 2016, with the relocation in the Brugnera plant. "Within our new headquarters," explains owner Andrea Zilli, "we decided to create a highly automated industrial environment, which could operate as a factory 4.0. Therefore, we insourced all our production operations by acquiring new



© Etra



© ipcm

Metal structures for school desks, after machining and before coating.

Furniture components produced by Etra and marketed under its own brand.



The powder coating booth with the Powder Center EVO.

metalworking machinery and a coating plant equipped with WAGNER's new Powder Center EVO; we also reorganised our processes through the use of a customised management system. coordinated by a management engineer who controls our entire production flow."

Now, all processes are carried out within this factory: aluminium and iron bars enter and components packaged in boxes with the end customers' brands exit. Besides such semi-finished products for its customers, moreover, Etra owns its own brand of finished products, Progetra. This includes grommets for desks, table bases, kitchen wall units, height-adjustable tables, electrified sockets, and much more.

From raw to end products

Tubes and raw sheets are processed with cutting, bending, and welding machines of the latest generation. The workpieces are then coated and, finally, assembled and packed. Each workstation is equipped with a video terminal, where the operator can constantly

view the batches being processed in chronological order, with all their related parameters, dimensions, and drawings. In the case of a last minute emergency, the new order appears at the beginning of the list.

The entire production flow is computerised, run from a 'control room' where the management engineer sorts the various orders by giving them processing priorities. "In the near future," adds Zilli, "customer orders will be managed automatically: each customer's file will be added to the management system, which will identify the product codes and develop the order. This will eliminate paper orders that require manual management, with a loss of time and the risk of errors."

The importance of coating

"Almost all our products are intended for the furniture sector, where finishing is of primary importance, especially given that our customers belong to the high end of the market," notes Zilli. "In the

past, we used to outsource our coating operations. However, this entailed numerous problems, above all in terms of processing times, considering our customers' increasingly pressing demand for just in time supplies."

The coating plant with the new powder management unit

"With the transfer to the new factory and the decision to insource all production processes, we purchased a second-hand coating system in good condition," states Andrea Zilli. "We started painting our parts immediately after an almost total revamping operation. However, after some time, with the growing number of customers

and colours required, we realised that its old powder application system had several limitations: the time required for the colour change operations was too long and a lot of non-recoverable powder was produced. After the first year, we had already disposed of a large amount of powders. Besides our inexperience, this was largely due to the system being outdated.

"We therefore turned to WAGNER (Valmadrera, Lecco, Italy), the manufacturer of our booth. Its team suggested us installing the new Powder Center EVO, which is a highly Industry 4.0-oriented system thanks to its software package for powder consumption management and industrial diagnostics. Without thinking twice, we decided to purchase this powder management unit and some new dispensing



The powder application booth.



The inside of WAGNER's Powder Center EVO.



The powder tank of the Powder Center.



The manual pre-retouching operation.

guns, which went into operation in January 2020. The results were immediate: since the first month, we have noticed an 80% reduction in waste powder. Our colour change times have been reduced from 40 to just 8 minutes: in fact, the operator only has to clean the booth, whereas the powder centre cleans itself automatically." At the entrance to the booth, an optical reader manages the guns by stopping the powder flow in the lower part of the racks, where there are no items to be painted. "The whole coating phase is integrated and connected to our management system, so that we have constant control of all technical parameters."

Conclusions

"We are absolutely pleased with our choice to rely on WAGNER. All the objectives that we had set out with the purchase of the Powder Center EVO have been achieved: quicker colour change operations, increased plant productivity, dramatically reduced amounts of powders to be disposed of, with both economic and environmental benefits, and significantly improved finishing quality," says Zilli. ●