Customer Report
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Atlas Eletrodomésticos: WAGNER enamel coating booth doubled production capacity and provides aesthetically-pleasing surfaces

Domestic appliance parts must fulfil the highest requirements in terms of quality, visual and protective aspects – especially when it comes to heat-resistant enamel coating. Since December 2015, an enamel coating unit from WAGNER accounts for high-quality and high protective coating results at Atlas Eletrodomésticos in Pato Branco (Brazil). The tailor-made solution from one of the leading providers of high-tech systems for liquid and powder coating has not only enhanced the production capacity for enameled parts at Atlas by 63 percent. It has cut powder consumption in half and substantially reduced the labor intensiveness in the respective production sector.

Atlas Eletrodomésticos is a Brazilian manufacturer of gas stoves, electric ovens and cooktops for households. The company, founded in the 1950s, is located at Pato Branco (Parana). It has approximately 1.800 employees and produces around two million stoves for the home and foreign markets in Latin America and Africa each year. In 2015, Atlas decided to cooperate with WAGNER to finally replace the previous manual enameling coating process for plain inner stove parts, which had resulted in workpieces with uneven surfaces that led to declining sales. Lots of rework like surface cleaning and waste led to high operating costs and further restricted the already limited production capacity of the then used booth. The situation had made it impossible for Atlas to launch new products on the market.

Since 2015, Atlas has been relying on a WAGNER Super Cube booth for the coating of the external panels of the freestanding ovens with organic powder. Due to the excellent coating results and high efficiency of the WAGNER solution from the very beginning, the company opted to additionally substitute the old enameling coating process by a modern WAGNER enamel powder coating booth. Since the end of 2015, this customized booth provides high-quality and uniform enamel coating results at the Atlas appliance plant. Even three years after the WAGNER enameling solution has been put into operation, it is running highly effectively – 24 hours a day, five days a week in three-shift operation. The solution more than doubled Atlas' production capacity, reduced enamel powder consumption by 50 percent and nearly eliminated the necessity of reworks, thereby reducing the need for manpower for this production process by 42 percent. "By reaching the needed production capacity and reliable, high-quality coating results, the new solution allowed our Product Engineering department to carry out new product launches, fundamentally expanding

our market reach and share”, states Renato Antônio Reis, at the time Engineering Industrial Manager, now General Maintenance Manager at Atlas Eletrodomésticos.

WAGNER enamel coating booth enabled quality boost

For superior powder application rates and high-quality coating results, the WAGNER enamel powder booth at Atlas runs with 38 units of PEA-CS automatic guns. For low service costs and much longer service life, all electronic components of these PEA-C4 HiCoat guns are integrated in a robust plastic body. In addition, inner parts in direct contact with the enamel powder are of especially adapted materials (e.g. glass pipe, porcelain nozzles and thermally treated steel components).

The gun technology for Corona enamel coating supports a significantly more homogeneous powder distribution and works with optimized electrostatic for efficient powder charging. It assures even thickness of the layers, optimum application efficiency and less powder waste – for higher profitability. In addition, the booth is equipped with a PrimaTech Sprint Controller. The automatic gun control system allows the configuration of individual values, e.g. of high voltage and material flow rate, for each gun as well as the storing of different coating programs for different internal oven parts, thereby enabling fast and easy coating with highest reproducibility. The coating results are further improved by the Air Treatment Group (ATG), which controls the level of humidity and the temperature of the air in contact with the enamel.

To ensure homogeneous powder atomization, the required quantity of enamel powder is fed from a WAGNER BigBag through a filter with enamel appropriate specifications to each application device. Thus, in enamel coating a robust filter, with an integrated rotary sieve system, replaces the powder center used in the application process of organic powder. During the coating process, perfect suction with a powder recovery system ensures optimum powder retrieval and a clean environment, which also facilitates access to the booth. Altogether, the smooth interaction of the single booth components leads to optimum coating results: "Reworking or cleaning of the coated panels is no more required”, Renato Antônio Reis adds.

Competence center for enamel coating ensured customized solution

At the competence center for enamel coating (WAGNER S.p.A.) in Valmadrera (Italy), WAGNER together with the client adapted the process parameters and system configurations of the projected booth – realizing a customized solution. "Due to space restrictions, we could not place more than one enamel coating booth in our production plant to process the needed amount of 70,000 workpieces per day. Therefore, WAGNER worked together with us on the realization of a double hookup”, says Renato Antônio Reis.

For this purpose, 24 automatic guns were mounted on two reciprocators and 14 were fixed. To facilitate the loading of the parts onto the conveyor in the enamel booth as well as the transfer of the parts to the furnace conveyor after the enameling, the hooks turn 180°. Before the hooks enter the furnace, they are first guided to a hook cleaning cabin. Here the workpiece suspension is not simply cleaned, but the powder adhering to the hook is sucked off for powder recovery. The workpieces are coated on three levels in the enamel powder booth – 16 pieces per hook. They run at a speed of 6 m/min. “This efficiency has never before been reached in our industry in this production process and enables us to coat an impressing surface of 25,000 m^2 per day”, states Renato Antônio Reis. Altogether, this increased the production capacity in this process by 63 percent to more than one million enameled stove parts per month.

Only eight months from project start to implementation

Thanks to the intensive testing phase in the Italian competence center, in December 2015, only eight months after the joined project started, the implementation of the booth at the Atlas appliance plant could take place. It was completed only 25 days later. “As the project was closely monitored in all phases of the realization, no unscheduled revisions or further adjustments were necessary. A technician from WAGNER Italy conducted an intensive training on site. Thus, we were able to put our new enamel coating booth into operation right from the start”, Renato Antônio Reis adds.

Even three years after implementing the WAGNER enamel powder booth, Atlas is completely satisfied: “The plant still runs highly efficiently and without any noticeable production interruptions. We expected fundamental improvements. But our expectations were exceeded by far. In the past we had many production stops due to maintenance problems. Since we are relying on the solution by WAGNER, system interventions have become much easier”, says Renato Antônio Reis. “The solution did not only increase the quality and optics of our products but also the perceived quality standard of Atlas products in the market. We have substantially improved customer satisfaction and created added value for our brand.”

The workpieces exit the enamel coating booth made of PVC which ensures an electrically insulated environment. As the electrostatically charged enamel powder deposits more easily on the workpiece, the use of PVC supports higher application efficiency and uniform coating thickness. In addition, PVC does not attract enamel powder. Therefore, the booth can more easily be cleaned. In top the exhaust and recovery system with sintered filter.

Overview of the workshop with workpieces entering the powder booth.

Workpieces at the entrance to the WAGNER enamel coating booth. A sensor captures the exact dimensions of the workpieces to determine the exact positioning of the automatic guns, thus enabling highest application efficiency and more economic use of enamel powder.

Backside of the powder booth with reciprocator and air treatment system

Central panel for the management of the complete booth system, including the automatic guns

Enameled workpieces coming out of the powder booth

Renato Antônio Reis, General Maintenance Manager at Atlas Eletrodomésticos, in front of the WAGNER enamel coating booth.

Atlas Eletrodomésticos coats for example the flat inner panels of the top, side and rear walls of free-standing ovens with heat-resistant enamel powder.