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Opening photo: STOBAG Alufinish is specialized in the mechanical processing and powder coating of aluminium profiles and sheets.



FOCUS ON TECHNOLOGY

STOBAG Alufinish: The Installation of Two Powder Coating Fast Colour Change Booths to Meet Customer Needs

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The awning market is increasingly oriented towards customized solutions in terms of geometric shapes and colours. For a job coater this means very often to produce very small batches. To quickly meet the requests of each individual customer, STOBAG Alufinish turned to SAT for the installation of two powder coating booths, which allow rapid colour changes.

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STOBAG Alufinish has been powder coating for 40 years high quality awning systems.

Wilfried Rapp, CEO of STOBAG Alufinish GmbH.

Awnings systems, as well as having the functionality to protect from the sun and from the bad weather, are a design accessory for homes, terraces, gardens and verandas. In confirmation of this, today more and more customers are making increasingly disparate requests: particular shapes, models and special colours. For a leading job coater such as STOBAG Alufinish GmbH, part of the STOBAG Group, knowing how to meet the most diverse customer needs quickly is the priority. Also quality plays a fundamental role for the STOBAG Group, which is a premium member of GSB International e.V. and coats in compliance with QUALICOAT quality standards.

The history of STOBAG Alufinish GmbH

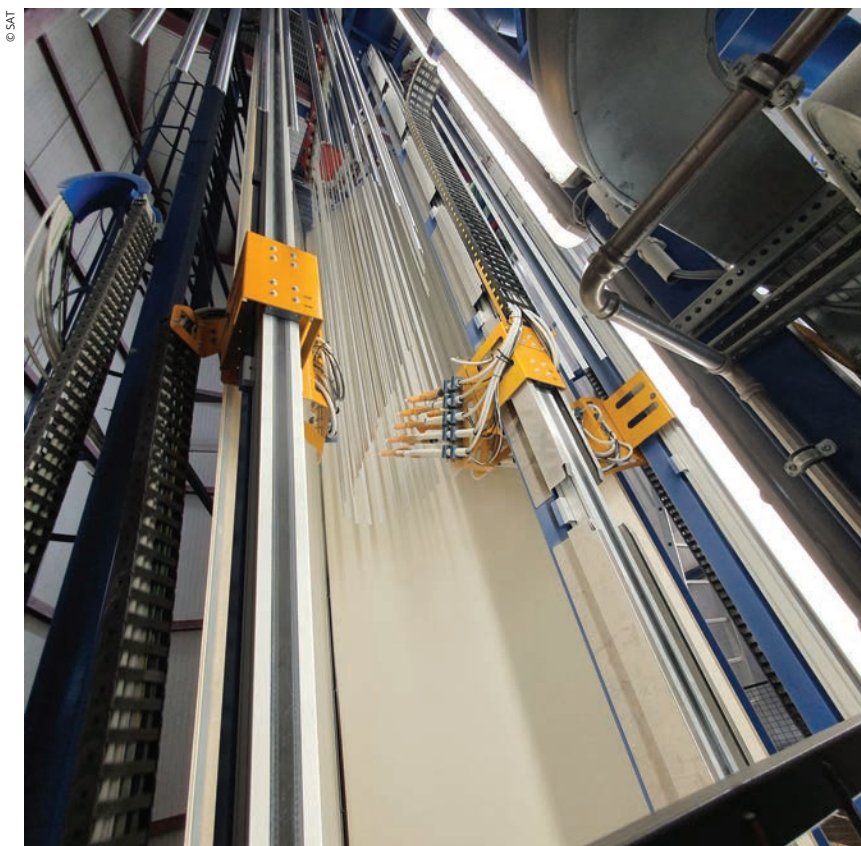
For over 40 year, STOBAG Alufinish GmbH has specialized mainly in the mechanical processing and powder coating of aluminium profiles and sheets

for system houses, automotive, mosquito nets and mechanical engineering industry. STOBAG defines itself as a job coater with a holistic approach: beyond its core business, which is represented by powder coating, the German company based in Wutöschingen also deals with the logistics of raw and finished materials, mechanical processing and component assembly. In fact, for many extrusion customers in Italy and Eastern Europe, STOBAG Alufinish GmbH offers the service of a local logistics hub with approximately 4,500 storage places for the DACH area. The German company has currently around 250 employees and is part of the Swiss group STOBAG, the world's leading manufacturer of individual awning systems. "To meet the needs of a market increasingly looking for customized awning systems, in 2018 we

chose to revamp one of the two coating booths present in our manufacturing plant. Satisfied with the results obtained, we recently turned again to SAT (Verona, Italy) for the modernization of the second coating booth", says Wilfried Rapp, CEO of STOBAG Alufinish GmbH.

The partnership with SAT

"The partnership with SAT began in 2002 when we decided to install a coating booth equipped with foil walls and 20 guns, to replace the existing vertical system. After 17 years, STOBAG again chose SAT technology to increase productivity and to offer a product with an even higher quality level. This time the choice fell on a V-shaped powder coating booth equipped with 20 powder guns supplied by Gema", continues Wilfried Rapp. "In addition to the mandatory



coating standards, such as GSB and QUALICOAT, many customers are interested in the optical flow, layer thickness and corrosion resistance of the coating, as well as a defect-free surface. Thanks to the current system in combination with the ultrasound screening of all the powders used, the surface quality of our products has significantly improved once again compared to the quality level guaranteed by the equipment used previously”.

The coating process with the new V-shaped powder coating booth

“The coating process begins with a pre-treatment phase through an automatic pre-brushing machine in which press defects and swarf are removed. Subsequently, the profiles go through an acid degreasing with various rinsing steps and a chrome-free no-rinse passivation. After drying, the profiles are led inside the new V-shaped powder coating booth designed and installed by SAT”.

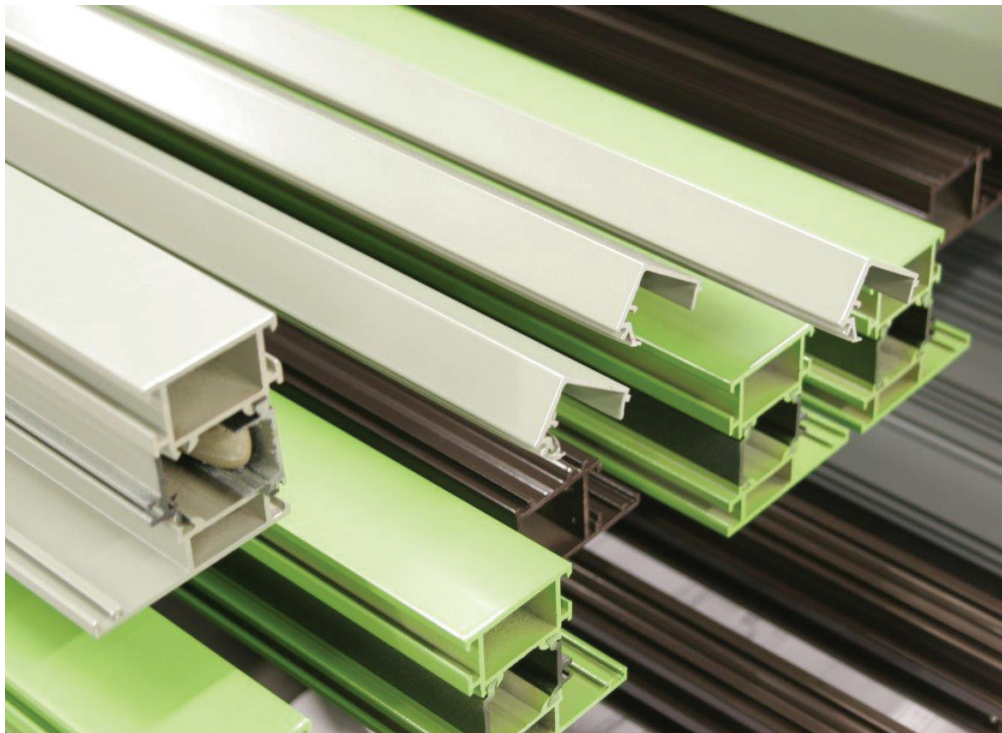
“It has been designed for the vertical powder coating of work-pieces, leading to a very compact installation with automatic guns, installed on a multi-arm vertical reciprocator. The booth consists of 2 vertical walls that surround the path of the aerial conveyor along which the powder is sprayed on the profiles. The walls are made of sliding belts that rotate and are cleaned in continuous. The exhaust air is conveyed to a high-efficiency separation cyclone through a slot placed along the line connecting the two walls; the high speed of the air in the ducts connecting the booth with the cyclone prevents the powder deposit along the circuit. The negligible quantity of powder escaped from the cyclone is caught by the final filter. The booth allows recovering the over-spray by means of pneumatic valves placed at the bottom of the cyclone, but the booth can also work without powder recovery”, explains Andrea Trevisan, CEO of SAT.

“Regarding the electrostatic powder application equipment, to adapt and reuse the existing powder application devices, the booth is equipped with 20 GEMA 60° angled heads for the powder guns and 20 guns support extension”, continues Trevisan.

“After the coating process, the profiles are

The new V-shaped powder coating booth developed and installed by SAT.

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Detail of the aluminium profiles painted by STOBAG with the V-shaped powder coating booth.

checked with non-contact coating thickness measuring devices and the necessary corrections are made immediately. The material then passes through a gelling area where small lots are parked waiting to be painted according to the colour chosen by the customer. This configuration allows the system to have no downtime", adds Rapp. "The main difficulty we encountered during the assembly and installation of the V-shaped booth was connected to the customer's need to continue working on an existing and operational line during our intervention. In addition, the STOBAG booth are located in an area of the plant which is very difficult to reach. The only way to replace the booth was entering



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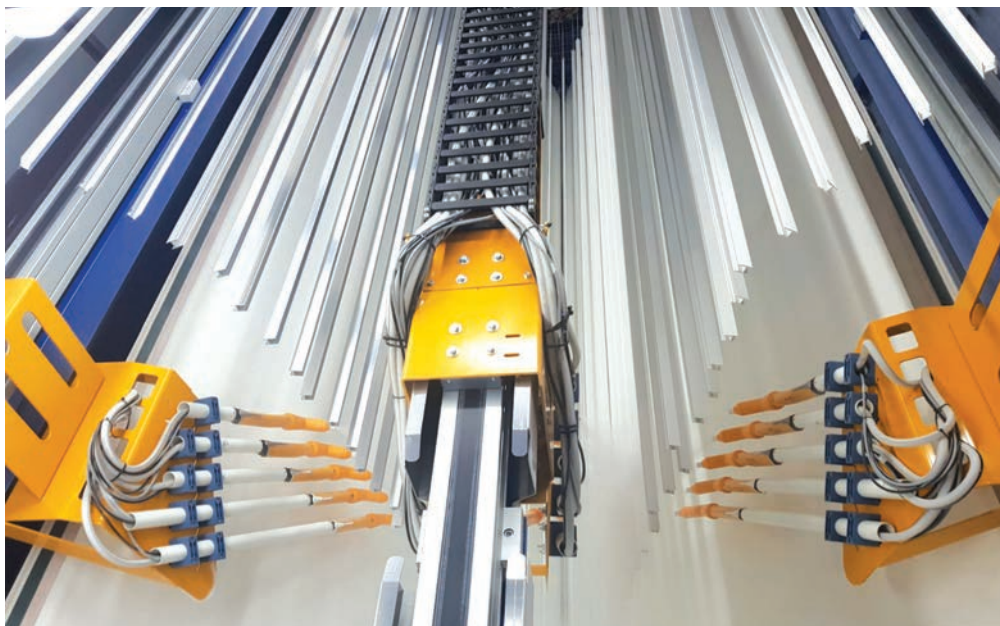
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The coating process is managed by a PLC supplied by Gema.



The coating booth is equipped with 20 powder guns supplied by Gema.

through an access located at one meter high from the booth pavement. The spaces were very limited, but we were able to install on schedule allowing STOBAG not to stop the activity", explains Trevisan.

The reasons of a choice

"We have observed a change of the trend of our customers towards small customized batches and with special colours and geometries. For this reason, in the last few years

about 10-15 colour changes per day were required. As a result, we needed a system that would allow us to have quick colour changes and speed in terms of booth cleaning. In early 2018, the first booth was converted by SAT to a new V-shaped coating booth. Performance and flexibility proved to be fully satisfactory from the first moment and we noticed a savings of about 16% of powder consumption. Based on these results, we have decided to replace the second cabin as well", explains Rapp.

"Another choice we made is to continue using Venturi technology instead of a dense phase powder feeding system. As we specialize in the coating of individual small batches, we have opted for a more flexible technology. With the Venturi system all common types of powder can be processed without any problems. Furthermore, the lower acquisition and maintenance costs were the decisive factor for the further use of the Venturi applications. On the contrary, the dense phase technology would have been more suitable for coating large batches of identical profiles".

Conclusions

"To meet the needs of the market of the awning systems industry, which is increasingly oriented towards customized products, we have chosen to modernize our coating process by installing two SAT's V-shaped powder coating booths. We are really satisfied with the new technology. Among the advantages we have found there are less powder consumption, higher application efficiency, improved penetration into slot areas, and faster colour changes".

"In about 3-4 years we plan to move to a new location and consequently to build a completely new coating installation. We will surely take advantage of this experience to install a new coating line", concludes the CEO of the German job coater. ●