

Presseinformation
Juni 2022

Glued pre-fixation reduces handling time

In order to shorten the cycle time in the production of panoramic roofs for automobiles, Reinhardt-Technik, technology leader in the field of adhesive and sealant processing, developed an application solution for pre-fixation. This enables the manufacturer to move its panoramic roofs more quickly to the next production step. This saves time, resources and money.



Today automotive glazing is facing many challenges in several performing areas as weight reduction, safety and security, styling and passenger comfort. Each performance, being closely interrelated with the others, is adding complexity to products and to their production phases: alternative glazing materials and multi-functional glazing are potential solutions and sources of added value.

According to the increasing requirements, the production of panoramic roofs for automobiles is also constantly developing. The panoramic roof, manufactured by one of the most important German car manufacturers, is an innovative car glass roof with complex assembled and glued parts. Very high accuracy in the shape and positioning of parts are existentially important for a first-class car.

In manufacturing, the time constraints are strict, because the process is strongly determined by curing times of the bonding processes. For bonding the large parts, a Tier 1 supplier uses the well-known 2K technologies Sikaflex® + SikaBooster® from Sika Automotive. With these products, strength for further processing is usually achieved after 20 minutes. The 1K applications, which are also used, require secondary fixation or a storage time of 24 hours before processing. The curing time depends on the booster content, which is 2% as standard. Too high a booster content would eventually lead to weakening of the composite.

Shorten response time and increase production capacity

To increase production capacity, the producer of the panoramic roofs wanted to reduce the time-consuming reaction times of the bondings. Together with Sika Automotive, the idea was born to add some separate adhesive dots with about 10% booster at the end of the application. The fast-curing adhesive dots of the pre-fixation should make the elements ready for the next step in production more quickly. The main bead, which continues to be processed with 2% booster, then carries the final structure. For implementation, a fast 1K PUR adhesive Sikaflex®-270 with a SikaBooster®AC-30 as accelerator was provided for this purpose.

"The idea was very good in itself. But we found out during the initial tests that this combination of materials reacts and cures extraordinarily quickly. Since this could lead to problems during application, we needed a separate metering unit with a particularly small mixer volume and simultaneously high flow rate for application," says Florian Altenwegner, Product Manager Headlamp and Roof Modules at Sika Automotive, explaining the problems of the application. In product management at Sika Automotive, Florian Altenwegner is globally responsible for bonding roof modules and headlamps for TIER 1 suppliers. From many years of experience, he knew that Reinhardt-Technik was the right partner to solve this special case.

Innovative disposable mixer from Reinhardt-Technik is the solution

Sika® and Reinhardt-Technik have been cooperating in a long and good working relationship for many years. "When Mr. Altenwegner came to us with his challenge, it was quickly clear to us that we would use and further develop our high-precision electric metering unit, which is already used in the actual bonding in this application, to solve this problem," says Christian Hose, Commercial Director at Reinhardt-Technik.

For this task, an extremely small mixer volume and a high flow rate had to be reconciled. For this purpose, a servo-electric 2K shot metering system type Vecdos eTwin with directly flanged dynamic disposable mixer was modified and optimized for use on a small robot.



The volumetric shot metering system was integrated into a production line developed by the STAR engineering team. STAR is a global leader in technologies and solutions for the automotive glass industry and has expanded its knowledge over more than 40 years. The fully automated production line implements the complete production process with the help of 21 robots integrated with specific designed machines and technologies. The production line contains comprehensive operations from the initial handling of the components, through the preparation, cleaning, priming, adhesive dispensing, part centering and checking. Accurate assembly and curing process, up to final inspection and packaging. The system includes 100% control of all individual process steps, including special sensors, 2D vision and 3D vision cameras.

In the production line, the frames for the panoramic roofs pass a robot, which is supplied with material via 200l drum pumps for Sikaflex®-270 and a 20l feeder for SikaBooster®AC-30. Via the newly developed metering unit with dynamic one-way mixer, the small robot applies the adhesive dots for pre-fixation at precisely predefined points. Immediately afterwards, the large main robot applies the actual adhesive bead to the frame and the pane is inserted. Thanks to the pre-fixing applied in advance, this holds quickly and securely. The entire development was intensively tested in the technical center at Reinhardt-Technik in Kierspe, at Sika Automotive in Hamburg, and at a manufacturer of roof systems, and met all release criteria.



Clever application, patented by Sika®

Thanks to fast pre-fixation, the prefabricated panorama roofs now no longer have to be stored temporarily in storage areas for curing. Immediately after application of the adhesive bead, they can be moved to the next production step for further processing.

Due to this new type of pre-fixation, which has since been patented by Sika, the handling time at the Tier 1 supplier is drastically reduced. "Reinhardt-Technik was able to reduce the processing time from 20 min to 4 min with this development. Once again, they have proven their great skills in the application of special adhesives. This makes them a valuable technology partner for us," says Florian Altenwegner. At the same time, he emphasizes the high quality of the result, the flexibility in the development, and the fast and highly professional technical support provided by Reinhardt-Technik for this special project. All in all, the new development increases production cadence and saves the user time and money.

Pre-Fixation brings cost advantage

The greatly reduced handling times in the production of the panoramic roofs is a lasting success for the Tier 1 supplier. "Thanks to the cycle time reduction productivity improved significantly. In addition, storage space is no longer required to allow the components to cure, as would otherwise be the case. All in all, there is a



Reinhardt-Technik GmbH
a Member of
WAGNER GROUP

Waldheimstr. 3
58566 Kierspe
Postfach 1207
58555 Kierspe
Germany
www.reinhardt-technik.com

significant cost advantage for the user," says Christian Hose from Reinhardt-Technik, explaining the success of the new process.

Based on this positive experience, the new system is to be used in the future wherever short handling times are required and no storage space is available. This solution from Reinhardt-Technik and Sika Automotive will save more time and money for production plants in the future.



Reinhardt-Technik GmbH
a Member of
WAGNER GROUP

Waldheimstr. 3
58566 Kierspe
Postfach 1207
58555 Kierspe
Germany
www.reinhardt-technik.com

About Reinhardt-Technik GmbH:

Within the WAGNER Group we represent the worldwide competence center for bonding and sealing. We are one of the leading suppliers of dosing and mixing technology for the processing of liquid plastics in the areas of bonding, sealing, potting and surface coating. Furthermore, we offer our customers the complete automation of the systems in cooperation with partners as a complete solution.

More information at www.reinhardt-technik.com

About WAGNER Group:

J. Wagner GmbH is one of the world's leading manufacturers of equipment and systems for surface coating with powder and liquid lacquers, paints and other liquid materials. The WAGNER Group portfolio also includes bonding, sealing and encapsulation technology including injection moulding with the brands WAGNER, Titan, Walther Pilot, Reinhardt-Technik and CA Technologies. The beginnings of the company go back to the year 1947. Today the innovative coating technologies of WAGNER are used in industry as well as by craftsmen and do-it-yourselfers and set standards in the industry. The WAGNER Group is represented worldwide by around 1,600 employees in 15 operative companies and around 300 agencies. Owners of the WAGNER Group are the Josef Wagner Foundations, which pursue exclusively charitable goals.

More information is available at www.wagner-group.com

Contact:

Christian Hose

Commercial Director

Phone: +49 (0)2359 666-143

Email: Christian.Hose@wagner-group.com