

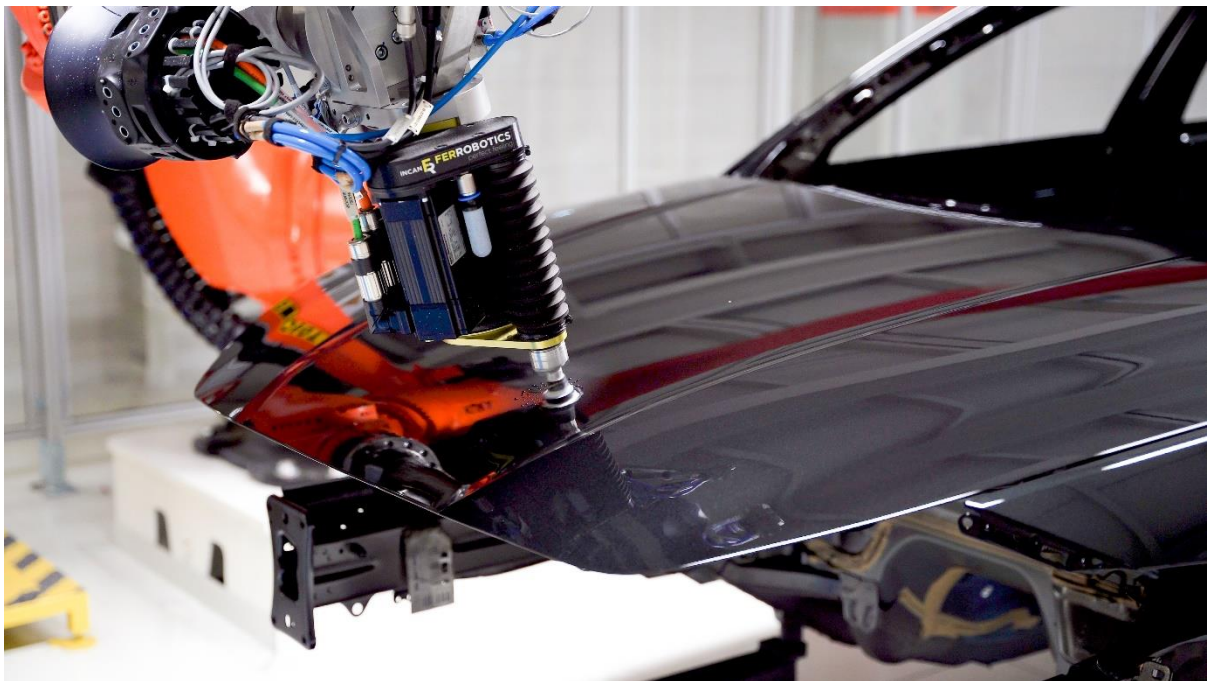
Press Release Dec 2022

FerRobotics end-effector is at the forefront of innovation within the VW Consortium

High-precision, fully automated finishing process in the paint shop

Linz / Barcelona - FerRobotics end-effectors with Active Compliant Technology are successfully integrated within an installation of an automatic cell for detection, classification, and repair of paint defects in the SEAT Martorell factory. The Spanish manufacturing team recently won the first prize in the INNOVATION category of the 2021 production awards given by the VW global consortium, presenting as an innovative project the automatic cell for repairing painting defects.

The VW consortium organizes a competition among its factories around the world and its various brands (Seat, Audi, Volkswagen, Bentley, Porsche, Lamborghini, Bugatti, Skoda, Man, Scania). Last year, 170 participants submitted projects in the various production areas.



The FerRobotics AOK XS is ideal for paint repair - Sanding and polishing painted/coated metal or plastic surfaces. It has automatic tolerance compensation and always works with the correct contact force directly on the surface.

Together with suppliers of other automation components, FerRobotics has been the strategic partner for robotic tools to carry out this project. With the collaboration of experts in vision systems and industrial automation integration. SEAT relied on the FerRobotics end-effector AOK XS 401/402 for the sanding, polishing, and cleaning for the first automated defect repair cell in its paint shop in Martorell.

This installation has the capacity to verify, classify and repair the different defects of the painting process by shape and size, being this a minimum of 0.25mm up to a maximum of 2mm. For this purpose, an artificial vision system and 4 robots are installed. Two of them in the first station, responsible for verification, classification, and wet sanding. The second station equipped with two more robots is responsible for cleaning and polishing defects.



“The FerRobotics AOK XS setup showed a reduction in abrasives, and increased speed in the overall paint repair process,” explains Oscar Castellón, Manager Paint Processes at SEAT.

By applying a virtual chord tracing system on the 3D of the car body developed by the integrator, the installation can differentiate areas of the body according to edges and/or surface shape automatically. Specific repair parameters to each area of the vehicle (exact force, rpm, duration, trajectory) ensure the optimum repair process for each defect to be treated.

“We appreciate the fact that SEAT have made all involved teams and FerRobotics part of this success. Together we have been overcoming the different challenges that the project has brought us during the setup,” tells Dr. Ronald Naderer, Founder and CEO FerRobotics.

PERFECT FULLY AUTOMATED REPAIR PROCESS

The defects are wet sanded with an AOK XS 401 (5 mm Excenter) - Active Orbital Kit using deionized water and polished with an AOK XS 402 (14 mm Excenter). The changes of sandpaper and polishing pad are carried out automatically by using extractors and storages in the installation itself.

This installation places SEAT at the technological forefront in this type of process, as to date there is no automatic installation on the market capable of grouping together from the detection to the complete repair of the defect, including sanding, polishing, and cleaning of the defect.

“Thanks to the pressure precision and active compliant force control of the FerRobotics AOK XS we were able to achieve our goal of eliminating defects automatically,” explains Oscar Castellón, Manager Paint Processes at SEAT.

ACTIVE FORCE CONTROL IS CRUCIAL

To achieve repeatable results, the robotic tool must be force-controlled and sensitive. Only FerRobotics' patented Active Compliant Technology solves this requirement in a meaningful and economical way. With this installation, Seat has a full automated process that up to now most automotive factories still carry out manually.

OPTIMIZED COMPLETE PACKAGE FOR IMMEDIATE INTEGRATION

As the technology leader in contact-sensitive robotics, FerRobotics provides the industry with the world's only plug-and-play system package for fully automated paint repair on the final coating. The AOK XS is a precisely matched system package consisting of Active Compliant Technology (ACT) and a random orbital sander optimized for robotic use. This integrated complete solution automates the industrial sanding process with individual control of all process parameters: Rotation speed, contact force and feed rate. The AOK XS offers the highest process quality from one source. The system design is compact and lightweight. The enormously resilient sanding unit is designed for industrial use.

THE DECISIVE ADVANTAGE

As an Industry 4.0 solution from one source, the powerful and functionally optimized complete system AOK XS delivers better results in terms of quality, productivity, and process reliability. The system's autonomous contact intelligence even makes job modulations quite simple for the end user. If the enormously resilient random orbital sander delivers twice the performance of commercially available equipment - 24 hours a day, 7 days a week, the constant contact pressure drastically reduces abrasives consumption. The reliable end-of-arm comfort solution AOK XS can be used for all industries and materials.

About FerRobotics

FerRobotics Compliant Robot Technology GmbH is a global leader in the development and distribution of flexible and intelligent robot elements (end effectors / end-of-arm tools). As a technology leader, the company offers its customers and market partners top-class expert knowledge and in-depth experience in sensitive automation. With its patented Active Compliant Technology™, FerRobotics delivers versatile solutions that help robots develop a sense of perfection - for every conceivable surface processing and contact-sensitive handling task.

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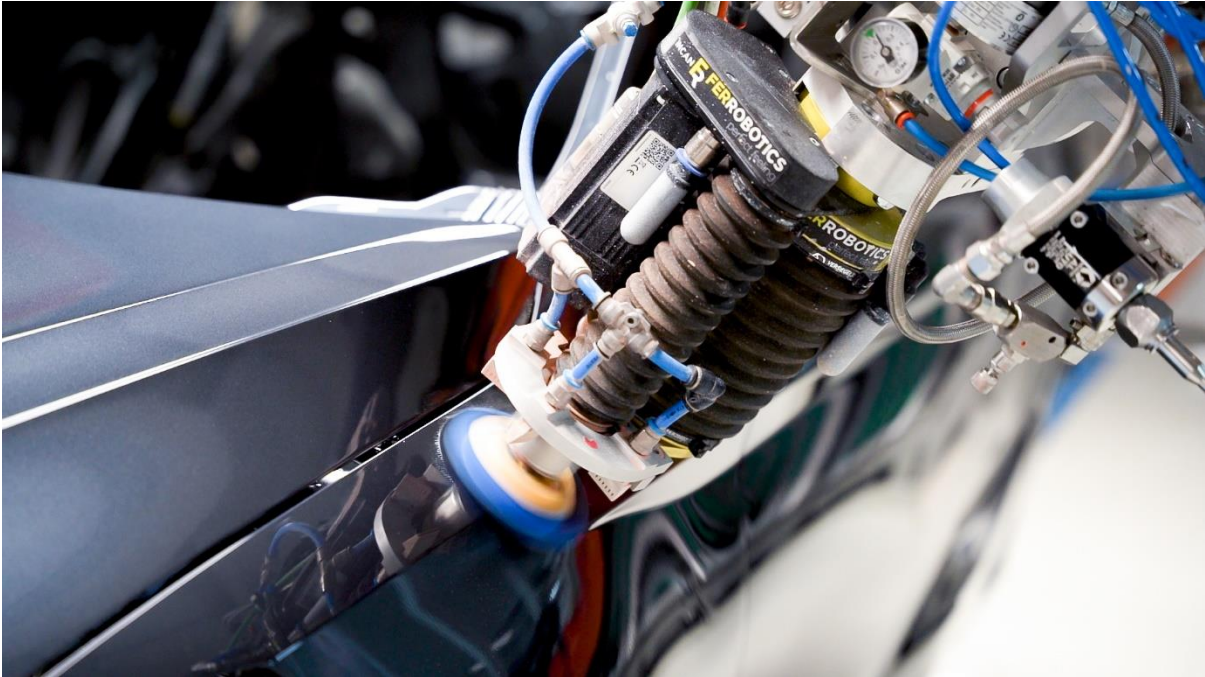
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Picture source: © FerRobotics

High-Res Picture link: <https://filesync.ferrobotics.at/index.php/s/9FNeWXXqG8N9apM>



Due to the extremely low moving mass, there are hardly any load change reactions or disturbing inertia effects with the AOK XS. Here, the ratios of mass, force range and process forces for sanding and polishing fit together perfectly.



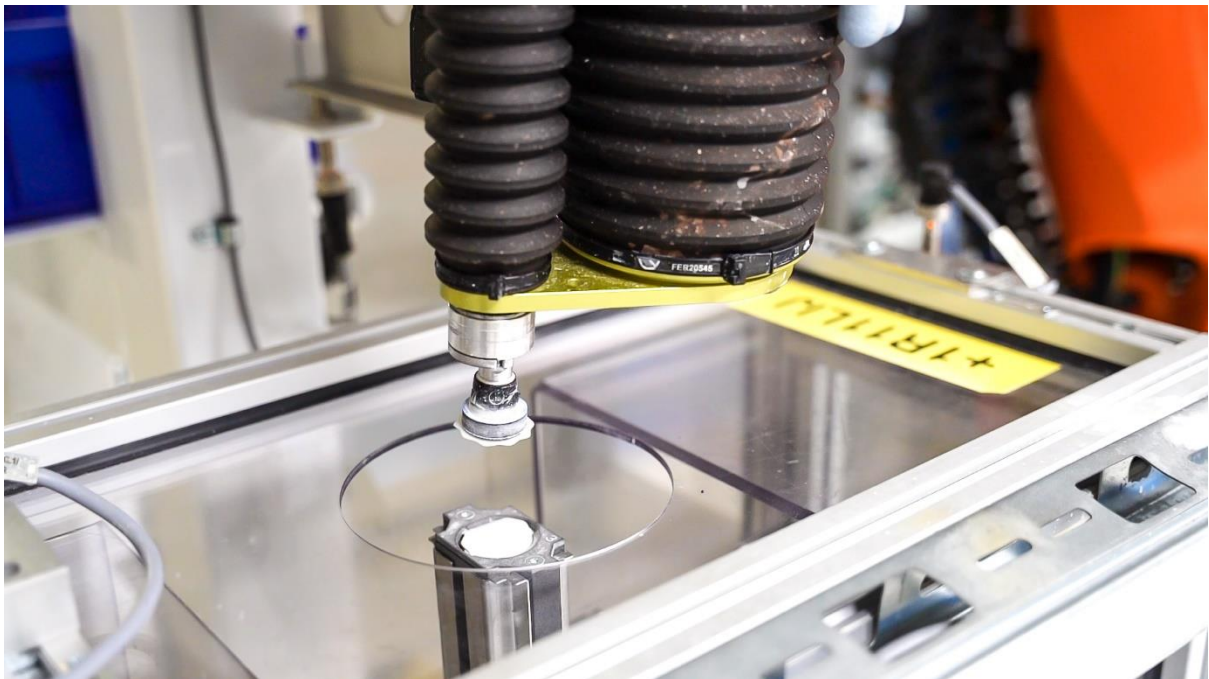
Thanks to the patented Active Compliant Technology, the contact pressure is exactly constant in every position.



The project included the installation of a two-station robotic line with 2 robots each. The first station is responsible for the detection, classification and wet sanding of the defect with FerRobotics end-effectors. The second station performs the polishing and cleaning of the defect.



FerRobotics AOK XS (Active Orbital Kit XS) – Ideal for contact sensitive surface finishing.



The changes of sandpaper and polishing pad are carried out automatically by using extractors and storages in the installation itself.