

Plastics Systems

Automotive supplier in Middle Franconia

Project:	Assembly line for body sills
Customer:	Automotive supplier in Middle Franconia
Technology:	Linking 4 robots in a manufacturing cell

An automotive supplier located in Middle Franconia produces body sills made of plastic for new vehicle types of renowned automobile manufacturers. The working steps following the injection moulding and painting process – i.e. assembling various clips and applying an anti-abrasion tape – should be automated to be able to guarantee the necessary quantities and ensure process safety.

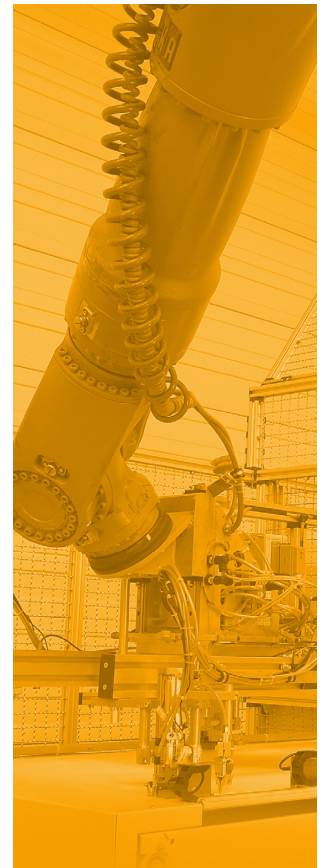
Project scope realized by SAR:

- Designing and dimensioning an automation line for eight different sill types without retrofit and set-up effort by means of a unit for component identification
- Linking 4 robots with creation of eight programs
- Developing the grippers and the die head technology
- Integrating sorter- and feeder applications for the different clips as well as of an application for the anti-abrasion tape application
- Developing a control concept incl. E-Plan creation and switch cabinet construction
- Implementing two visualizations for a user-friendly control of the production line

Facing the challenge of operating the plant with eight different sills, an appropriate goods carrier system and a downstream take off- and identification station was integrated. At this part of the plant, the sill types are identified by means of sensors and the associated program numbers are passed on to the four robots integrated in the production line. For compensating tolerances the length of each component is measured. This correction value is then considered when setting the clips through robot 1 and 2.

After the first station the sill is picked up by robot no. 3 and then passed along an adhesive application head for applying the anti-abrasion tape. Here, it has to be considered that the rotatory speed when unwinding is linked to the linear travel speed of the robot. Upon the application of the tape, the sill is routed to a station where an adhesive pad – applied by the worker prior to routing the sill into this station – is press-moulded with a defined pressure and where finally the component is deposited.

For setting the other clips, the sill is then picked up by robot no. 4 and directed to a clip station. To compensate component tolerances, each clip position is checked at a camera station before setting starts. In case a correction value exists, this value is processed directly. At the end, the injection-moulded part is deposited by the robot on a conveyor and finally transported out of the cell.



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