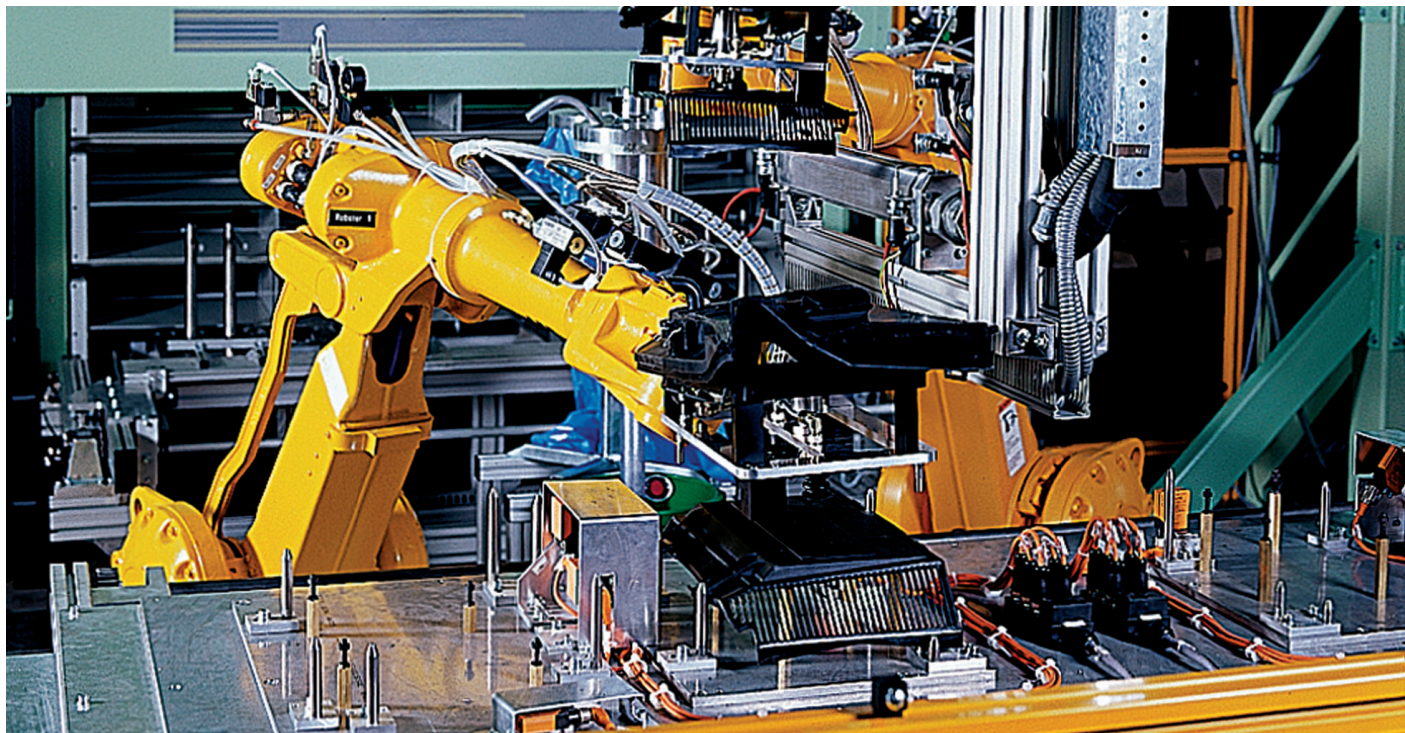


BMW micro filter housing, Seeber, Germany

Case study: Sealing



A new automating concept makes it possible for automobile supplier Seeber to equip micro filter housing after injection moulding with several seals fully automatically. Compared to conventional sealing processes, direct application of sealing agents onto the housing with EDF mixing and dosing systems in connection with an ABB robot saves money and increases flexibility.

Sealing in five-second cycles

BMW's automotive supplier Seeber from Peine, Germany, developed an automated manufacturing method to seal micro filter housings in close cooperation with the leading manufacturer for low-pressure dosing and mixing systems, EDF Polymer Applikation Maschinenfabrik GmbH, Hörbranz (Austria) and sealant manufacturer Sonderhoff GmbH, Cologne. With this process, several seals are applied at

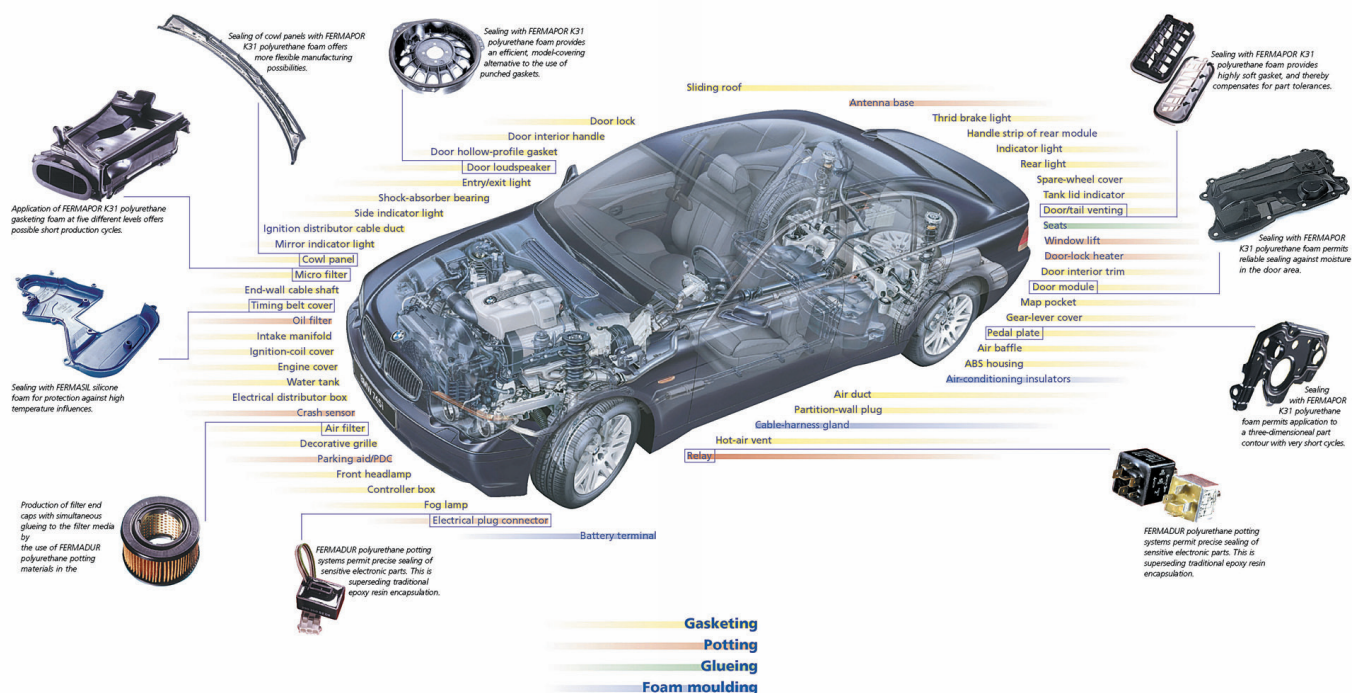
different component levels. Used is the so-called FIPFG process (formed in place foam gasket) with which the sealant, a two-component foam system made of polyurethane or silicon that cross-link at room temperature, is directly applied to the component with an ABB robot. In the past, the housings were manually sealed with conventional O-rings and profile packing. This required high usage of personnel and was accordingly very cost intensive.

480,000 micro filter housings per year

The task was to fully automatically seal about 480,000 micro filter housing per year with differently contoured seals on different levels of the housings with only one dosing and mixing system. The production capacity was to be 22.5 hours per day on 220 days per year. In addition, the system was to have an overall availability of at least 85%.

EDF developed a proper dosing and mixing system with multifunctional automation concept for Seeber. In addition, it was important to Seeber to be able to program new components as easily as possible in-house and switch between the different dosing and CNC programs.

Laser cutting, BMW micro filter housing, Seeber, Germany



Robot seals precisely and flexibly

Today, Seeber's employees can respond to their customers' just-in-time delivery specifications. After equipping the applicable feeds, the sealant is foamed onto the micro filter housings with an IRB 2400 robot with 16 kg handling capacity. Based on the high stiffness and path accuracy of the robot the order is processed with accurate contour and very precisely.

Because of the dynamic model in the ABB robot controller, no corrections are required even if the speed changes. The system operating personnel can carry out conversions to new components without complications and with short start up times.

The system automatically enters the parts code to control the dosing and mixing system. Their dosing program then proceeds CNC controlled automatically and interrupts the process only for programmed mixing head flushing cycles. The mixing head is automatically flushed at the end of each production process. No additional cleaning agents are required because the dosing and mixing system works with an integrated high pressure water flushing system.

FACTS

ABB Dynamic Model

Motion control is the key to the robot's performance in the area of path accuracy, speed, cycle time, programmability and synchronization with external devices. By improving these parameters, users improve quality, productivity and reliability. The path accuracy of TrueMove, together with the short cycle time of QuickMove, is the cornerstone of these user benefits. TrueMove ensures that the motion path followed by the robot is the same as the programmed path

- regardless of the robot speed

QuickMove is a unique self-optimizing motion control feature. It keeps cycle times at a minimum by ensuring maximum acceleration at every moment. Tests have shown that ABB robots can reach more than 25 % shorter cycle times than competitors.

ABB and the Plastics Industry

ABB's wide range of plastics robots can handle most of the tasks involved in and around injection mould machines, regardless of required cycle time or size of the machine. Together with our partners, we provide automation solutions for most manufacturing processes in the plastics industry.

ABB Robotics

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Power and productivity
for a better world™

