Fast-Cure polyurethane foam seals for series production

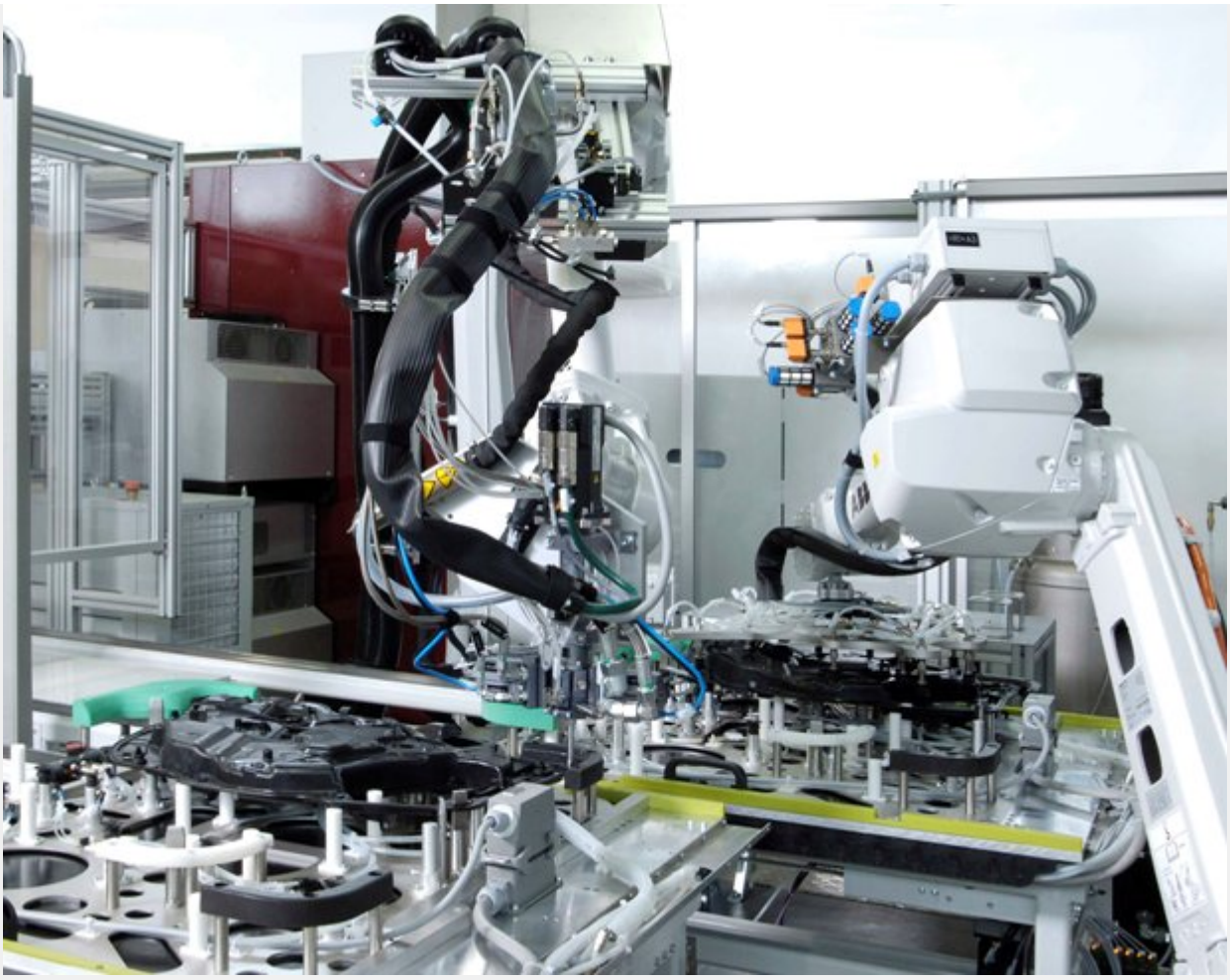
- Foam seals are tack-free after only 2-3 minutes
- Faster subsequent processing – reduced production time
- Complex three-dimensional sealing applications possible

The new Fast-Cure seals from Sonderhoff Chemicals are fast reacting two-component polyurethane foam systems with a very short tack-free time. The seal surface is tack-free after only 2-3 minutes so that the foamed industrial parts can be seamlessly processed in the subsequent production process. The Fast-Cure foam sealing systems are used where high production speeds are required. Main applications: control cabinet and vehicle manufacturing.

FIPFG sealing technology and Fast-Cure foams allow quick subsequent processing

The formed-in-place foam gasket (FIPFG) sealing technology, i.e. the automatic application and curing of liquid seals, has been state-of-the art for many years in the highly automated vehicle construction but also during the series production of control cabinets. With the FIPFG sealing technology and the use of low-pressure mixing and dosing systems of Sonderhoff Engineering, high quantities with the required zero error tolerance and with a repeatable product quality can be achieved.

Liquid foam sealants are, in terms of contour and dimensions, precisely applied to industrial parts (with or without groove) produced in series and cure there to become a soft foam seal. Due to a usage of almost 100% of the raw materials, the material costs are kept to a minimum. In contrast to the pre-fabricated conventional inlay seals, there is no punching or cutting waste. Thus, the FIPFG sealing technology achieves high process safety and also quick subsequent processing times if Fast-Cure foams with a very short tack-free time are used.



The mixing head attached to the articulated-arm robot precisely
travels along the component contour for the sealing application (source: Sonderhoff Group)

Stand-alone or fully automated production line

For the sealing of automobile door modules or control cabinet panels made of metal or plastic using the FIPFG technology, Sonderhoff Engineering offers low-pressure mixing and dosing systems of the DM 40x series which can be integrated either as a stand-alone system or as a fully automated production line. The Sonderhoff Mold'n Seal procedure allows for a process-integrated in-line production combining injection moulding and gasket application in a place saving central space.

The Fast-Cure polyurethane foam seals from Sonderhoff Chemicals used for automobile door modules or control cabinet panels achieve tack-free times of less than 3 minutes at room temperature. This means that the industrial parts can be quickly processed in the subsequent production process without the need for cost-intensive intermediate storage. Additional investments in furnaces are also not needed.

Good compression set of the Fast-Cure seal

The fast reacting Fast-Cure foam seals of the Fermapor K31 FC product range have a low water absorption, and some of them even meet the protection class IP69K in combination with the sealed part. Due to good mechanical values, they can be easily installed and reset 96 to 98% under test conditions at 70° C. The good resetting ability of the foam seal is critical when a part,

such as barrel lids and control cabinet doors, is frequently opened and closed in order to maintain a constantly high sealing effect in closed position.

Complex three-dimensional sealing applications possible

When applying a sealing to a control cabinet door, the linear robot moves the mixing head of the mixing and dosing system along the part contour. Paste-like material is freely applied via the mixing head dosing nozzle to the inside of the control cabinet door. Once the sealing is applied, the foam expands to a size several times its volume and forms a soft foam seal with a width-height ratio of approx. 2:1. The ratio of width to height of a seal can be adjusted by means of the component material.

Regarding more complex three-dimensional parts with inclinations, the automatic sealing application may also be performed by an articulated-arm robot. In this regard two configurations are possible: either the robot takes the part to be foamed and moves it below the mixing head of the dosing system or the mixing head is guided by the articulated-arm robot and precisely travels along the part contour for the sealing application.

Shorter production times due to quicker subsequent processing

Using conventional foam seals with considerably longer tack-free times, control cabinets and automobile door modules must be cured on longer curing lines or even stored temporarily before being subsequently processed. By using Fast-Cure foam seals with very short tack-free times of 2-3 minutes, manufacturing companies are able to realize quicker subsequent processing and also an earlier start of the assembly of the part. This results in significant time savings during the entire production process, makes the production more efficient and reduces unit costs.

Picture: The articulated-arm robot grabs the part to be foamed and moves it below the mixing head of the dispensing system (Source: Sonderhoff Group)