

SEALING OF ATMs



Henkel

Reliable functionality of ATMs in all climate zones

It has been some time since we collected cash at the cashier's desk inside our local branch. We now use an ATM approximately 85 percent of the time. These machines can be found in almost all possible and impossible corners of the world. This enables people living in even the most remote parts of the earth to withdraw money and carry out other banking transactions.

In spite of the ever-increasing number of cashless payment transactions, the importance of cash continues unabated. The more banks close their branches to cut costs, the more ATMs are installed.

In addition to being located in the entrance areas of banks, hotels, gas stations, train stations and shopping malls; ATMs are on the outside of building facades or free-standing terminals in pedestrian zones.

ATMs and multifunction terminals must therefore be robustly built and sealed for outdoor use. We offer a large number of tested solutions for the secure sealing of the installed components. The sealed inside of the terminal remains dry in spite of the influences of the damp weather and the electronics of the ATMs are protected against corrosion caused by moisture.

Are you looking for a more efficient way of using materials or cost effective solution for sealing the components of your ATMs than with conventional seals or without tooling costs compared to 2K injection molding?

We will provide you with a perfectly matched sealing solution that consists of a sealing foam that satisfies your requirements and a dosing system for high-precision, fully automatic material application that is controlled by contour robots.

Do you require a flexible automation system for sealing your components that can be variably adapted to your production conditions?

With our machine solutions, the focus is on the extremely flexible use of your dosing system which can be very well integrated into existing production concepts thanks to its modular structure. You will be provided with a fail-safe mixing and dosing system that is also very easy and intuitive to operate.



Reliable sealing with optimized material consumption

The components of ATMs mainly consist of plastic, on which the polyurethane sealing foams used for the sealing process usually offer good dry adhesion.

For components with a flat application surface, the 2-component polyurethane foam FERMAPOR K31 must have a thixotropic, stable viscosity. For contours with a groove, the sealing foam is applied in liquid form.

The variably adjustable degree of softness of polyurethane foams is advantageous for low installation forces during the assembly of ATM components. In addition, thanks to the efficient, very precise FIPFG (Formed-In-Place-Foam-Gasket) technology, significantly less material is used when sealing with polyurethane foam compared to the die-cut gaskets used in the past.

In the event of repairs to the ATM, non-destructive removal and reinstallation of the sealed components is perfectly possible with our polyurethane sealing foams. This advantage results from the very good resilience of the soft-elastic foam gasket without any loss of tightness. In this way, ATM components are completely sealed again even after reinstallation.



The different reaction phases of the sealing foam in the chronological sequence



	2D application with groove	2D / 3D application without groove
FERMAPOR K31-	A-9675-2-VP	A-9230-2-VP
	B4	B4
Mixing ratio	4.0 : 1	4.5 : 1
Pot life time	38 sec.	50 sec.
Tack-free time	3.5 min.	8 min.
Viscosity of the A component	1,800 mPas	50,000 mPas
Density	0.34 g/cm ³	0.29 g/cm ³
Hardness (Shore 00)	64	62
Temperature resistance	from -40 to +80 °C	from -40 to +80 °C
Pretreatment	if necessary, plasma for e.g. PP and PE, if necessary, primer for metallic surfaces	if necessary, plasma for e.g. PP and PE, if necessary, primer for metallic surfaces



Card slot cover



Fingerprint panel



Card slot



Lens cover

The excellent long-term behavior of FERMAPOR K31 polyurethane foams and the seamless sealing of your components by means of our precise dosing technology prevent the penetration of moisture and protect the electronics of ATMs from malfunctions due to corrosion.



The unpressed polyurethane foam gasket on a flat application surface before installation



Pressing the foam gasket achieves the required degree of tightness in the installed condition.



The unpressed polyurethane foam gasket in the component groove before installation



By pressing the foam gasket in the groove, tightness is achieved in the installed condition.

Flexible and fully automatic – fully in line with your requirements

DM 503 mixing and dosing system with 3-axis linear robot and a shuttle table for picking up parts

The reference configuration shown here consists of the DM 503 mixing and dosing system for 3 components with LR-HD 3-axis linear robot and WT 1-LEVEL shuttle table for picking up parts. The two shuttle tables working in pendulum mode enable the workpieces to be fixed there and processed in one plane. This means that very short cycle times and continuous operation can be guaranteed.

The placement and positioning of the components on the shuttle table top is performed either by a machine operator, who can also check the parts for quality, or by a Pick & Place Robot. In this case, an optionally installed camera system could do the quality control of the parts.

The optional plasma nozzle mounted on the rear of the Y-axis, which is CNC-controlled by the 3-axis linear robot, applies plasma on the contour of the components for surface activation, resulting in better adhesion of the foam gasket.

The DM 503, which has been designed for three material components, can process and dose both liquid and thixotropic sealing material. This offers you the advantage of needing only one dosing machine for sealing the various components of your ATMs, even if you have to use different material systems for this purpose.

The MK 825 PRO precision mixing head, which is controlled by the contour robot, applies paste-like polyurethane foam to flat application surfaces or liquid polyurethane foam into the groove of the surrounding component contour in a fully automatic manner using the FIPFG process with high dosing and repeat accuracy. After the dosing cycle, the coupling point of the foam gasket closes seamlessly and is almost invisible. When installed, the uniform compression of the foam gasket produces a consistently high level of seamless tightness over the entire contour of your sealed ATM components.

Due to the automatic recording of the dosing program data, all process data can be traced and evaluated while production is running. For all solutions, our main focus is on extremely reliable plant engineering, minimized maintenance times and a very stable application process of the sealing foam used – with very high dosing quality.



Optionally available: **CONTROL 2** touchscreen operating panel (21.5") for operating the dosing system



WT 1-LEVEL shuttle / sliding table
Two pick-up plates operating in pendulum mode in one plane



MK 825 PRO precision mixing head
with high-pressure water rinsing



Highly dynamic **LR-HD 3-axis linear robot** for precise guidance of mixing heads for the application of polymer reaction materials. The rack-and-pinion drive with high stiffness and acceleration enables dynamic application speeds.



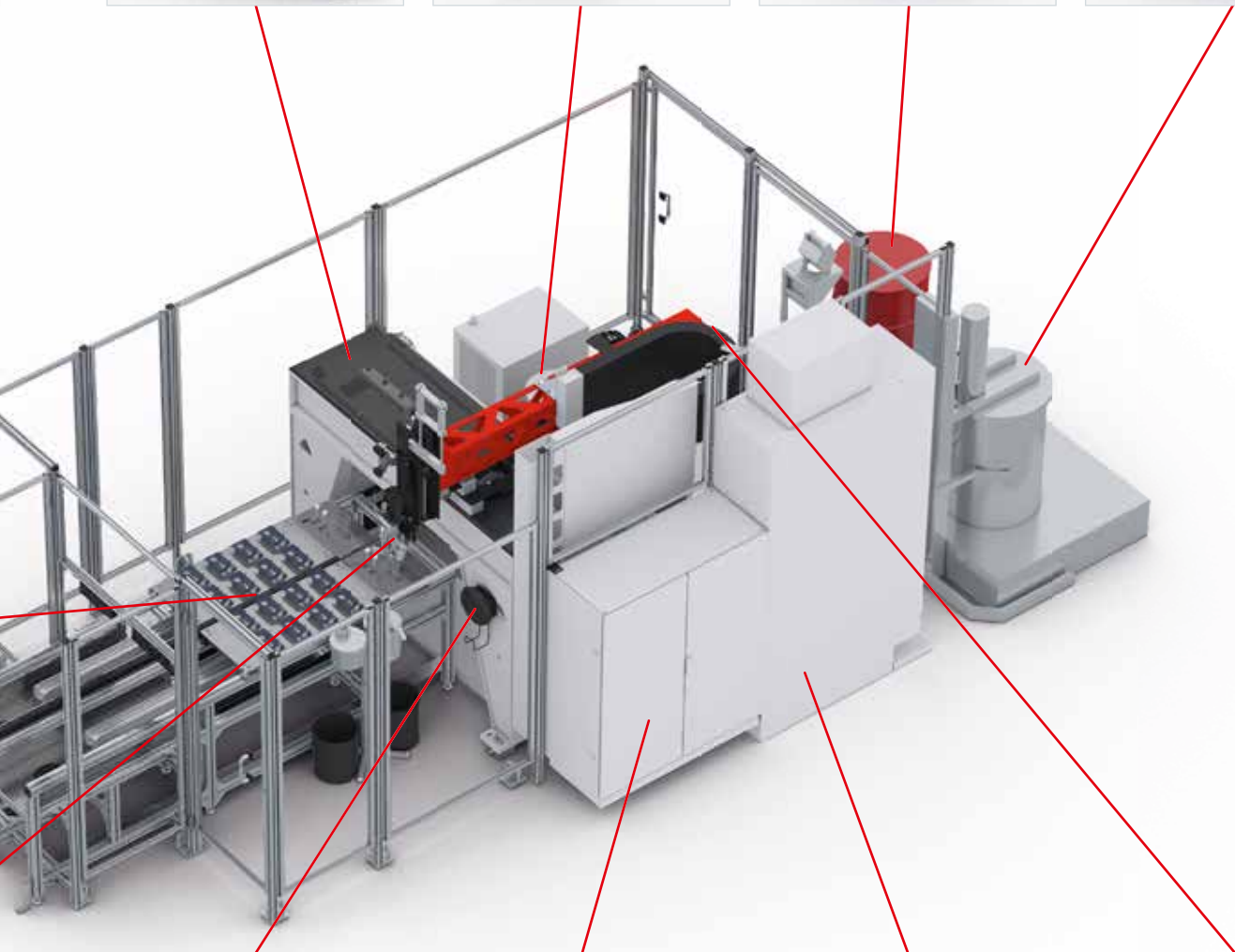
Material pressure tanks (24 l or 44 l, single-walled or double-walled) with minimum level sensors, on a grating platform with adjustable leveling feet and drip tray



Optional:
Automatic **SUPPLY TAP drum refilling station** for low-viscosity products, e.g. isocyanates (**B component**)



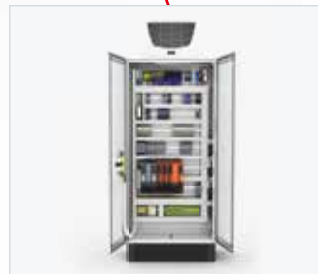
Optional:
Automatic **ELEVATOR drum refilling station** for the **A component** with pneumatic lift and agitator



The multifunctional **MP 2 mobile panel** (10.1" WXGA TFT) enables convenient operation of the dosing system.



The **dosing machine cabinet** contains the components of the dosing periphery, such as the dosing pumps.



The control electronics, safety engineering and industrial PC are installed in the **control cabinet**.



Surface activation through atmospheric plasma to improve adhesion. The **optional plasma nozzle** can be installed either on the back of the Y-axis or parallel to the mixing head with a lifting unit.



This is why you should use the FIPFG technology in your production process



Advantages of the Formed-In-Place-Foam-Gasket Technology

- › Sealing standard in many industrial sectors
- › Highly accurate material application controlled by contour robots
- › Processing and full curing at room temperature
- › Perfect coordination of the material system and dosing system
- › Suitable for 2D and complex 3D part geometries
- › More efficient use of materials compared to punched seals
- › More cost effective compared to 2K injection molding, as there are no tooling costs
- › High degree of future viability, due to solution flexibility in a wide variety of industries & applications



Advantages of our mixing and dosing machines

- › Combination of processes (bonding, foaming, potting)
- › High flexibility of the dosing system
- › Simple, intuitive human interface
- › Automatic material preparation incl. handling
- › High dosing and repeat accuracy
- › Short machine downtimes and cycle times
- › Fine-cell foam structure due to dynamic mixing
- › Reproducible foam quality
- › Ecological high-pressure water rinsing
- › Easy maintenance



Advantages of our FIPFG foam gaskets

- › More cost-effective than compact systems due to lower foam density
- › Seamless seal / hardly visible coupling point
- › Compensation of component tolerances
- › Excellent resilience after compression
- › Multiple compression and release processes possible
- › Broad range of properties / wide variety of recipes
- › Individually adaptable formulations
- › Good form fit to the component contour
- › Resistant to moisture, dust, temperature & media
- › Flame-retardant according to UL 94
- › IP classes up to IP 68 or NEMA 4 to 6 and NEMA 12
- › Special PU foam with low VOC emissions
- › Very fast reacting PU foam (Fast-Cure)

Perfectly coordinated solutions of material, machine and contract manufacturing

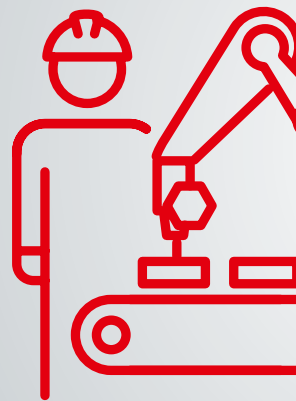
With its Sonderhoff brand, Henkel has not only acquired many years of experience in the manufacture of tailor-made 2-components sealing systems and mixing and dosing machines, but also as a process expert for application-specific material application using the FIPFG (Formed-In-Place-Foam-Gasket) technology.

With the Sonderhoff portfolio, we offer you the advantages of a system provider from a single source and the solutions to meet your technical and commercial challenges.

With the dosing technology that is tailored to our sealing foams, we ensure efficient production processes in accordance with the requirements of fully automated series production.

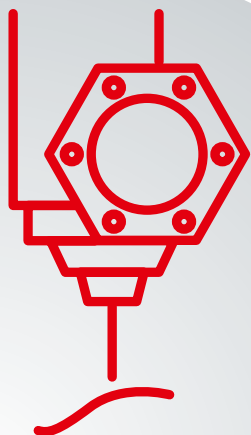
If you would like to take advantage of all the benefits of the FIPFG technology for your production in a flexible, fast, and effective manner, we provide sealing solutions for your components at one of our many contract manufacturing sites worldwide without having to make your own acquisition investments. The spectrum ranges from the sampling of prototypes and small batch series to production scale manufacturing.

The choice is yours! You can either decide in favor of our all-inclusive package, consisting of material, machine and contract manufacturing, supported by application advice, sampling and training or you can choose the individual solutions that suit you best. We combine our products and services from a single source in such a way that you receive the optimum solution for your requirements profile.



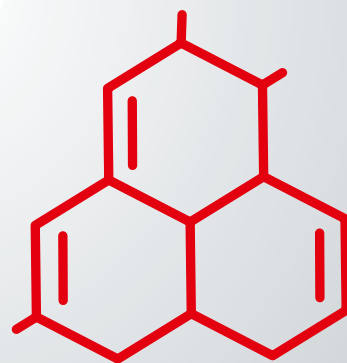
MANUFACT

Flexibility & Precision



EQUIPMENT

Automation Solutions



MATERIALS

URING

Customer-specific solutions – worldwide and for many industries

The Henkel specialists for the Sonderhoff portfolio
are available to you worldwide

KOLO, POLAND

External Subcontracting Location

LONDON, GB

External Subcontracting Location

COLOGNE, GERMANY

Center of Expertise

ELGIN, ILLINOIS, USA

Regional Hub

RICHMOND (KANSAS CITY), USA

Regional Hub

DORNBIRN, AUSTRIA

Center of Expertise

BARCELONA, SPAIN

External Subcontracting Location

OGGIONO, ITALY

Regional Hub

INCHEON, KOREA

External Subcontracting Location

SHANGHAI, CHINA

Regional Hub

PUNE, INDIA

Regional Hub

PUNE, INDIA

External Subcontracting Location

SÃO PAULO, BRAZIL

External Subcontracting Location



Global Presence

Every year, more than 300 million seals are manufactured in more than 50 countries using products from the Sonderhoff portfolio. At our “Centers of Expertise” and “Regional Hubs”, our specialists offer application engineering advice on the selection of a suitable material system and sampling of your components as well as project management for dosing systems and automation. We can offer training on how to use the FIPFG technology. We will also support you with the selection of spare parts and a regular service offering. Furthermore, we will be pleased to take over parts of your production for you – from small to large series – at our subcontracting locations.

Sales staff at all other Henkel locations worldwide will also be happy to answer any questions and provide you with further information on our sealing, bonding and potting solutions. We look forward to hearing from you.



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