

# SEALING SOLUTIONS

Innovative ideas with our team.  
Under one roof.





## The company divisions



### Chemicals

Development and production of chemical gasketing, gluing and potting systems



### Engineering

Development and production of dispensing machines and automation systems for gasketing, gluing and potting



### Services

Custom processing and other services



# OPEN TO EVERYTHING THAT NEEDS TO BE SEALED

## Welcome to Sonderhoff!

Global markets and international growth require a successful company to be innovative, flexible and clearly structured.

Established strengths, newly defined.

Paring down to the fundamentals at Sonderhoff means that we are THE system supplier for polymer sealing, gluing and potting systems, dosing machines, automation, application services. Our concept is as simple as it is successful: gasketing, gluing and potting of the highest standard. Or, to put it another way: innovative ideas with our team – under one roof.

Quality – meeting demands is an integral part of our company group culture.

The person is the focus of our company philosophy – whether as a customer, an employee, a supplier or a part of our environment. We demonstrate to our employees that commitment and acceptance of responsibility based on trust and cooperation are rewarded. Maintaining the highest quality for our products and first-class customer relations are crystal-clear objectives at Sonderhoff, each and every day. We see it as every employee's obligation to keep this high-quality standard – and to improve it at every position, from management to assembly. We are currently certified according to ISO/TS 16949, ISO 9001, ISO 14001 and BS OHSAS 18001.

### Environmental protection

We feel particularly committed to our environment and future generations. Environmentally sustainable raw materials, products and production processes are therefore always our first choice. Resources and energy are used sparingly and, in addition to waste avoidance, we give priority to recycling. The use of new technologies in manufacturing, processing and applications ensures that our everyday interactions harmonize with people and the environment.





**Water**



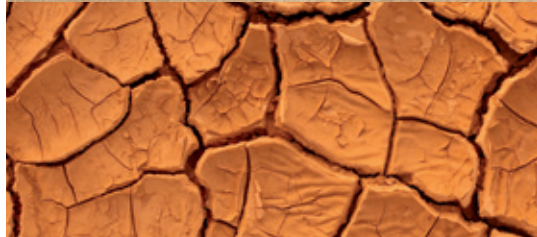
**Coldness**



**Vapors**



**Dust**



**Heat**



# SAFELY SEALED

## Sounds simple, but it isn't.

Many components and modules that are used in the manufacture of a diverse range of products must be tightly sealed after their assembly to ensure that humidity, dust, harmful media or temperature don't have a chance.

These requirements have led to the situation in which seals that are embedded by hand or directly injected are being replaced more often with automated polymer sealing systems. Our system concept is: gasketing, gluing and potting – under one roof.

As a leading company for customized sealing solutions, Sonderhoff provides its customers with multiple patented knowledge and experience from a wide variety of realized applications. Across all levels, on a wide range of materials and various geometries. Always of optimal quality. Precisely sealed. So that Humidity, Dust & Co. stay outside.



# CHEMICALS

## The right chemistry!

Chemistry is of particular importance to us. On the one hand for our products and services, on the other in the close connections we maintain with our customers and our relationship to the environment. An exact balance ensures the best solution each time.

Always in focus: sealing systems with the optimal physical and chemical properties for the particular purpose as per the customer's requirements.

Selecting the correct raw materials always has priority with us. They must meet high-quality standards over the long term, be risk-free, and in the application must be reproducible and dimensionally accurate.

We also offer environmentally degradable and compatible cleaning agents, rinsing agents for low pressure mixing and dosing machines, as well as adhesion promoters. Our systematically acquired knowledge, more than thousand formulations, and the innovative power of our entire group guarantee absolute customer orientation, tailored products, and solutions in line with market conditions.

Our product families are outlined below:

**FERMAPOR® K31** — Polyurethane flexible foam systems

**FERMADUR®** — Polyurethane potting resin systems

**FERMASIL®** — RTC-Silicone foam systems

**FERMAPOR® DD980** — PVC-Plastisoles

**FERMASKIN®** — Soft polyurethane foam surrounded by an elastomeric skin

Of course, all our products are formulated in such a way that current workplace safety and environmental requirements are met.





# ENGINEERING

## Tailor designed mixing and dosing plants!



Shorter and shorter product consistently lead to ever-new forms and variants of the most varied industrial components. Dosing machines and automation solutions that can flexibly be adapted to every requirement are therefore in high demand. Our core competence, therefore, includes developing, consulting, selling and after-sales support of the appropriate technology for a particular situation, regardless of whether you want to operate a Sonderhoff Engineering Plant as an individual production unit or integrate it into a complex production line.

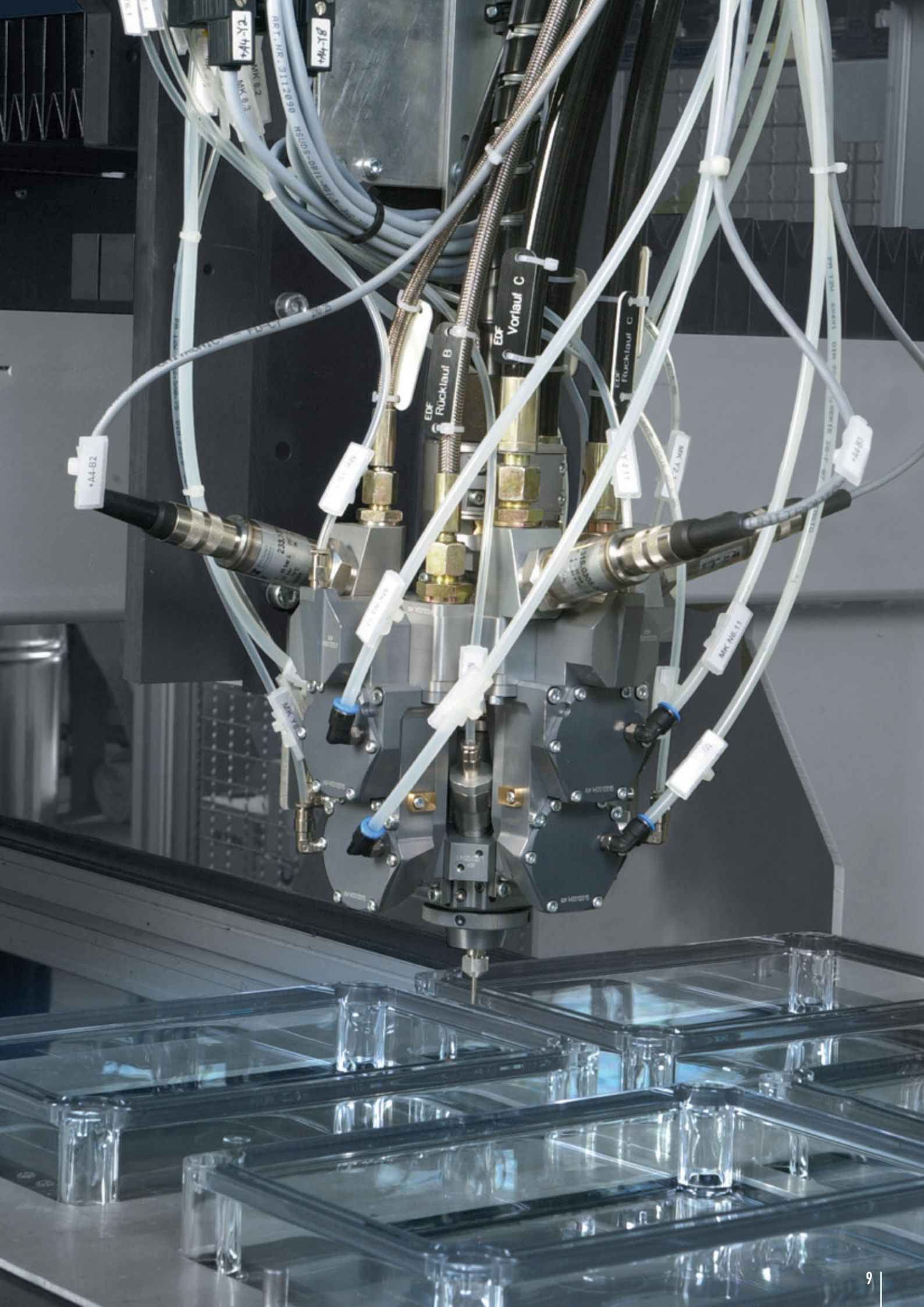
System solutions are developed and implemented in close collaboration with our customers – always based on the latest safety standards, technical performance and environmental sustainability.

This is assured through our highly specialized engineers.



Polyurethane, silicone and other reactive materials are applied by using contour robots in freely programmable geometry. The robots are CNC-controlled, for two- or three-dimensional applications. Mixing and dosing plants developed by Sonderhoff enable correct and proper processing of the material used. Conditioning is dependent on the material, e.g., through homogenizing, temperature regulation, nucleation, evacuation and recirculation. Dosing and mixing are done in the appropriate mixing head. The result: Accurate, safe and economically efficient.

Technical innovations such as our patented high-pressure water rinsing system of the Sonderhoff precision mixing heads MK 400 and MK 600, our flow control system, and our drip- and maintenance-free nozzle closure system, modular design and reliable procedures all ensure a profitable return on your investment.









# SERVICES

Our service guarantee:  
Hand-in-hand under one roof!

Higher quality through synergy.

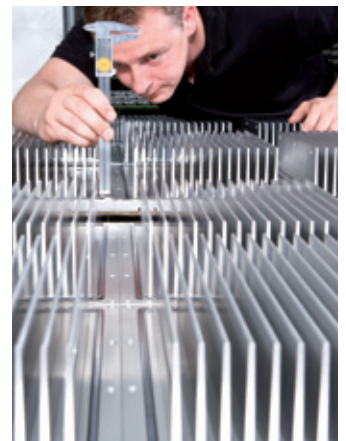
When it comes to contract applications, Sonderhoff offers a complete range of services from the production of individual prototypes and pilot or small series through to full-scale series production. Thus customers who for whatever reasons want to outsource the sealing system from their production chain, or who would like to take the first steps in using the FIPFG technology together with us, have access to the entire group knowledge.

Sonderhoff as the extended workbench? No problem.

One of the advantages is being able to carry out test runs or new developments without disrupting your own production. Sonderhoff also provides additional capacity during a customer's production peaks or increases in demand. Our company group ensures the integration of your developments and production processes with practical experience.

If you add up experience, know-how, innovative power, dedication and team spirit into a homogeneous overall concept, the results are synergies you can talk about.

We combine our chemical and technical competence with creative services that offer a program with a single objective: satisfied customers. This includes supporting our customers from the production of individual prototypes through handling over large series production as well as consultancy and training. With a team that can always be reached. Personally. Because satisfaction doesn't come from "almost."



# ACTIVE LISTENING

## The first step to an extraordinary solution.

Every industry places special demands on its partners, day after day, product by product.

The first step towards customer satisfaction is to understand the customer's requirements. We therefore listen very carefully when a customer is explaining their new tasks.

Our systematically acquired knowledge and the creative innovation of our group are your guarantee for optimal customer focus, tailor-made products and market-driven solutions.



**Lighting**



**Enclosures**



**Automotive**



**Filters**



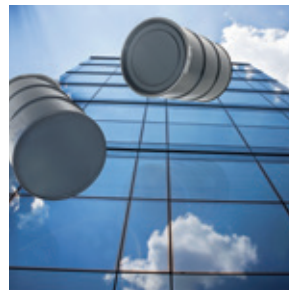
**Printing**



**Electronics**



**Appliances**



**Packaging**



**Photovoltaics/  
Solar heat**



# LIGHTING

## Let there be light for everybody tomorrow.

Whether street pole lamps, moisture-proof luminaires, sign lamps or energy-efficient LED lights, the innovative Sonderhoff products, known for their exceptional impermeability, can literally be seen on every corner.

With clear potting from Sonderhoff LED systems are protected against damaging environmental influences. This is how they retain their original lighting effect for as long as possible.

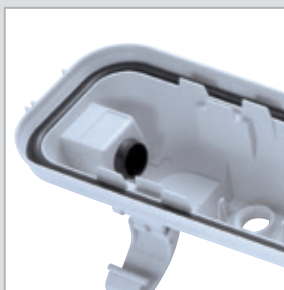
The highest standards in IP protection make the Sonderhoff sealing and potting systems the first choice of leading light manufacturers. Sonderhoff also offers manufacturers of explosion-proof lights products for obtaining PTB, ATEX or UL accreditation.



Street pole lighting



Sign lighting



Moisture-proof lighting



LED lighting

Foam sealing for light enclosures: polyurethane-based FERMAPOR® K31 and silicon-based FERMASIL®.

Transparent or opaque cast resins for LED lights: Polyurethane-based FERMADUR® and silicon-based FERMASIL®.





# ELECTRONICS

## Electrifying ideas.

Dirt, humidity and other factors can not only render components inoperative or destroy them – when it involves sensitive applications, these factors can also be life-threatening.

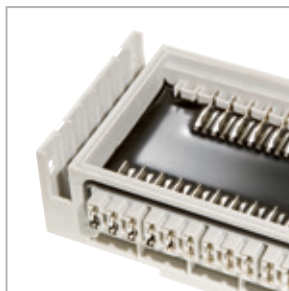
Sealing with Sonderhoff FERMADUR®, a bi-component polyurethane potting resin, reliably protects your electronic components from moisture, dust and mechanical damage.

Whether crash sensors, capacitors or other electronic components – Sonderhoff has the exceptional solution for every application and any problem.

Tested a thousand times and approved a thousand times over.



Transformer potting



Relay potting



Capacitor potting

Casting of electronic components with Sonderhoff FERMADUR® potting compounds.











# ENCLOSURES

## Shut the door and everything's tight.

For enclosures and connection boxes, the function of an extraordinary seal is obvious.

The interior space must be dry and clean, and humidity and dust must be excluded. The characteristics of Sonderhoff FERMAPOR® K31 and FERMASIL® sealing foams ensure the highest IP protection classes. Special product types are also tested according to NEMA and UL (Underwriters Laboratories) and achieve classification from UL94-HBF to UL94-HF1.

This is why FERMAPOR® K31 and FERMASIL® sealing foams are used by the leading manufacturers of enclosures and connection box systems.



Powder-coated enclosure panel



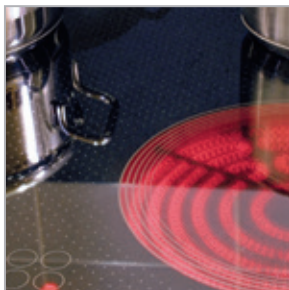
Stainless steel enclosure panel



Plastic connection box

Sealing of enclosure components with FERMAPOR® K31 gasketing foam.





Sealing of ceramic stovetop



Sealing of washing machine



Sealing of sink



Gluing of microwave glass door





# APPLIANCES

## Hidden use for the user.

Many products and technical solutions from Sonderhoff are kept hidden and ensure that the end user is satisfied with their choice of product. Whether a vacuum cleaner, a ceramic stovetop, a sink or a washing machine – it's always the hidden facts making the difference.

Hidden facts such as reliable sealing or bonding that make household appliances even safer.



Sealing of oven glass door



Sealing of dishwasher



Sealing of vacuum cleaner

Sealing of various products with FERMAPOR® K31 and FERMASIL® gasketing systems.



# AUTOMOTIVE

## Just in time and always tight.

Components and modules that are used in automotive manufacture must remain tightly sealed after their assembly.

Humidity, dust, harmful media or temperature-influences effects can easily become a risk. We leave nothing to chance because quality and safety are paramount at Sonderhoff.

This holds true from the selection of raw materials, to their processing, through to the safety of the production plant.

Our polymer reaction products for gasketing, gluing and potting, as well as for foam molding, are dispensed on site and in the widest range of products – across all levels, using the most diverse materials and in the most varied geometries. Today and tomorrow: Sonderhoff stands for flexible solutions – just in time.



Fuel tank cap sealing



Door carrier sealing

...more than 400 different applications for gasketing, gluing, potting and foam molding.



Oil pan sealing



Brake light (CHMSL) sealing



Light fixture plate sealing



Loudspeaker sealing



Headlamp sealing



Air outlet channel sealing



Number plate light sealing



Timing belt cover sealing





# PACKAGING

## Drop test passed.

Whether black plate, tinplate, steel, plastic or fiber packaging – the demands placed on modern packaging are as varied as their contents.

The same is true for the demands placed on the respective sealing systems, whether with an approval for the food industry or with UN approval for technical contents. Sealing systems from Sonderhoff offer extraordinary protection against leakage or contamination, even those caused by drops, shocks and vibrations.

Alternatively, we offer our one-component PVC compounds from the FERMAPOR® DD980 range to seal tinplate packaging lids.

Clear requirements, clear solution – typically Sonderhoff.



Plastic drum lid



Tinplate pail lid / steel drum lid



Plastic container screw-cap lid

Sealing of various packaging lids with FERMAPOR® K31 gasketing systems.



# FILTERS

## So that only the filter decides, what comes through.

Whether in air-conditioning or industrial systems, cars, or vacuum cleaners – filter quality is crucial for creating clean air for many productions and products.

Filters need to be well adhered and have exceptional sealing to ensure they hold what they are made for. No sooner said than done – Sonderhoff product developments are provided to leading filter system manufacturers, for use in households, industry or clean rooms.

The FERMAPOR® K31 foam sealing and FERMADUR® potting systems can also feature antibacterial properties to enable use in handling air facilities. They efficiently protect the plastic surfaces of air distribution components against allergenic microorganisms.



Sealing special paper filters



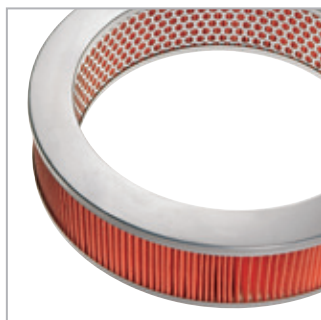
Sealing HEPA filters



Foam molding radial seal filters



Gluing industrial filters



Gluing car air filters



Gluing vacuum cleaner filter cartridges

Various sealings with FERMAPOR® K31 polyurethane foam sealant, and bonding of end caps with FERMADUR® polyurethane potting.







# PHOTOVOLTAICS/ SOLAR HEAT

## NEAREST TO THE SUN...

To ensure solar panels and photovoltaic systems can work effectively and simultaneously withstand the elements and changes in weather patterns, they need to be rendered impermeable once assembled. Sonderhoff products are used to exceptionally seal, bond or cast them for protection against moisture, dust, harmful substances and temperature-related influences.

With our high-quality sealing, gluing and potting products, we provide optimum solutions for solar panels, solar modules, photovoltaic junction boxes, and inverters.



Sealing of PV inverter housing



Potting of PV junction boxes



Gluing of solar panels

Sealing, gluing and potting for various photovoltaic and solar heating applications with FERMAPOR® K31 foam sealing, and FERMASIL® gluing or potting systems.







# PRINTING

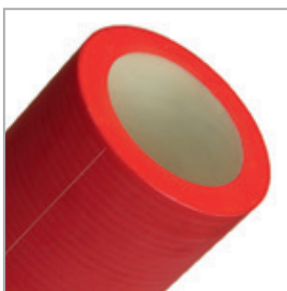
## Brilliant print quality which inspires.

Frequent replacement of print rollers due to different sized printing plates leads to expensive downtime of the printing machine. That's why the graphics industry uses coated print roller sleeves of various sizes and qualities for flexographic printing on foils, cardboard packaging and paper. The sleeve is easy, fast and affordable to replace, with the printing plates simply applied to the surface.

Sonderhoff two-component polyurethane casting resin FERMADUR® is for the rotation casting of print roller sleeves. It is resistant to solvent-based printing inks and detergents, and generates a seamlessly cast coating. It ensures dimensionally stable, highly concentric print rollers, which are crucial for constant register accuracy. The printing inks end up precisely on top of each other, creating a brilliant print image.

The result: reliably reproducible print quality, maximum productivity and greater process stability in the printing plant with Sonderhoff FERMADUR® rotation casting resin.

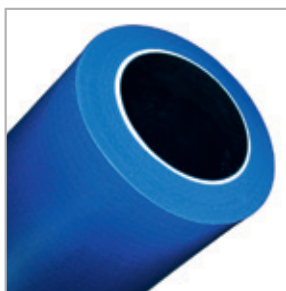
Coated print roller sleeves for flexographic printing with:



PU hard coating



Conductive PU coating



PU soft coating



Laser-engravable PU coating





# READ WHAT OTHERS HAVE WRITTEN ABOUT US

## What really counts is the result!

Sonderhoff asked some customers to express their thoughts about us. About our standards and our quality requirements, as well as about the advantages of the Sonderhoff system. An objective evaluation emerged – and not just pretty words.



**BOSCH**  
Technik fürs Leben

### ROBERT BOSCH GMBH

When it comes to sealing of our ultrasound-based sensors for vehicle parking aids, BOSCH relies on FERMASIL® silicon foam by Sonderhoff Chemicals. We are a global leader in ultrasound sensors, which work based on the echo-sounding principle used by animals like bats for orientation. The sensors emit short ultrasound impulses which are reflected by barriers. The echo signals are registered by the sensors and analysed by a central control device. BOSCH processes the FERMASIL® silicon foam using highly precise, fully automatic Sonderhoff Engineering mixing and dosing systems. We believe Sonderhoff chemical products and processing machines guarantee high-quality system solutions and reliable ultrasound-based BOSCH driver assistance systems.



### RITTAL GMBH & CO. KG

Since its founding in 1961, Rittal has developed into a global player with more than 60 affiliates and more than 11,100 employees. Today, we are the leading global system supplier for housing and enclosure technology with more than 10,000 immediately deliverable standard products, a highly sought-after partner in all sectors in industry, engineering and plant construction as well as a trendsetter in all segments of the IT market. Rittal trusts in the established foam process technology from Sonderhoff. We have used the FIPFG (Formed In Place Foam Gasket) process for many years for sealing our high-quality enclosures. We expect innovative strength, flexibility and reliable on-time deliveries from our suppliers as well as the ability to support our production facilities with a complete focus on service. These demands are best met by the Sonderhoff Group (Sonderhoff Chemicals, Sonderhoff Engineering and Sonderhoff Services).





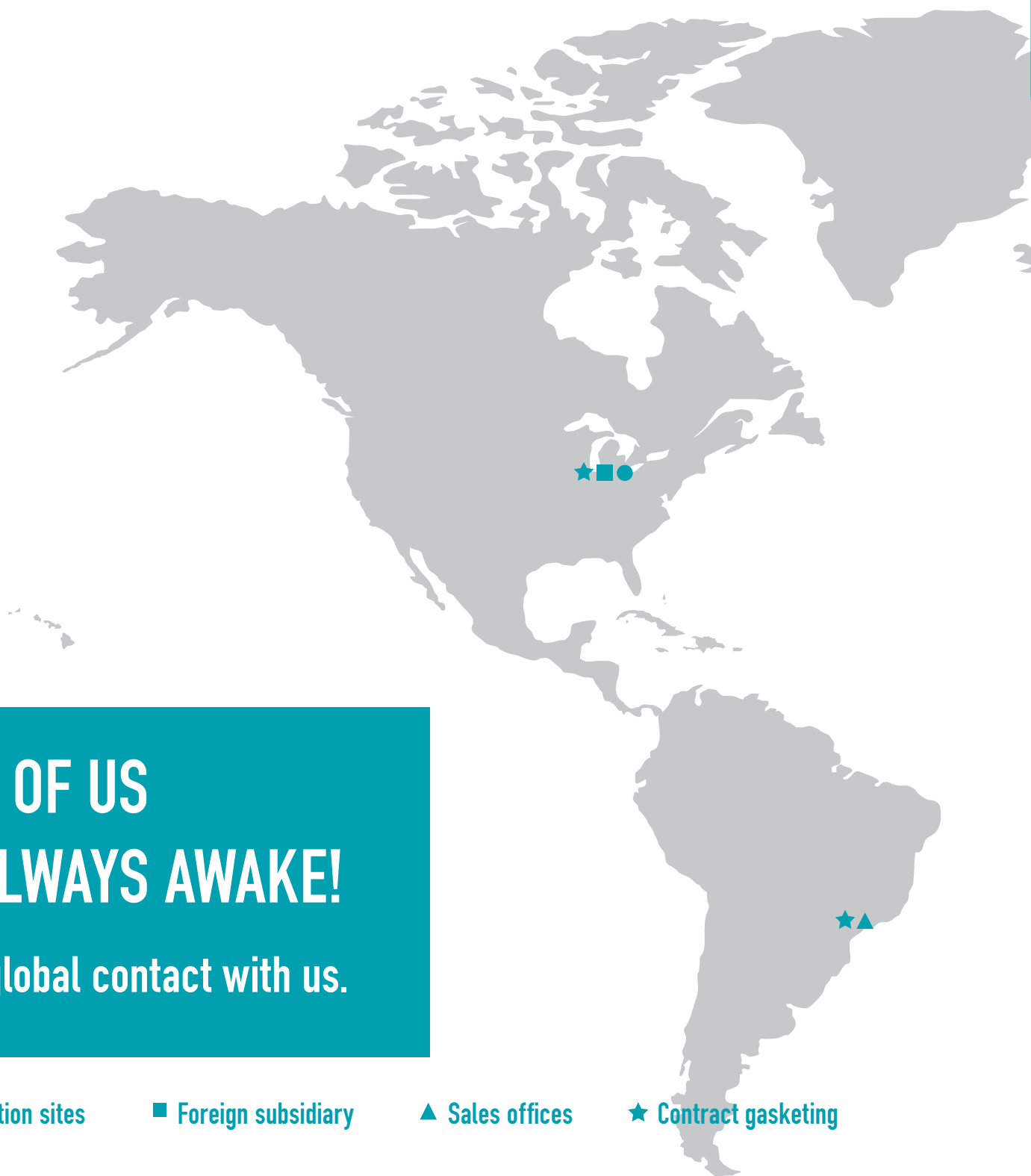
#### MANN+HUMMEL GMBH

MANN+HUMMEL was founded as an automotive supplier in 1941. Since then, we have definitively left our mark on developments in filter technology. In the manufacture of our well-known filter products, we only use production facilities that satisfy our stringent demands for reproducibility and availability. In Sonderhoff Engineering, we have found the right partner for mixing and dosing technology, who, should service be required, also assists us in exactly the way the international automotive supplier industry would wish.



#### DRÄXLMAIER GROUP FOR BMW

As a supplier for the automotive industry, we are constantly engaged in satisfying the ever-increasing demands of our customers in quality and economics. As we have successfully used the two-component polyurethane foam to seal automotive series components for many years, we rely on innovative and tailor-made materials as well as flexible and future-oriented processing plants. A comparison of concepts between the different manufacturers resulted in a clear decision in favour of Sonderhoff Chemicals and Sonderhoff Engineering. The reasons for our decision were the high degree of flexibility, efficiency and security of investment, as well as the competent support during series production, which can only be provided by a solution found “under one roof.”



**ONE OF US  
IS ALWAYS AWAKE!**  
Your global contact with us.

● Production sites

■ Foreign subsidiary

▲ Sales offices

★ Contract gasketing

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We supply worldwide to more than 50 countries and our customers produce annually more than 300,000,000 seals with our products.



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