



insight

MAGAZINE



Cellular rubber • Cellular polyethylene • Sponge rubber • Fluid sealants • Rubber moulded parts • Filtration technology

► **Cellular rubber**

New qualities available

► **Sponge rubber**

High-Performance seals

► **Fluid sealants**

Exact sealing directly on the component

► **PU moulded parts**

Shapes made to measure

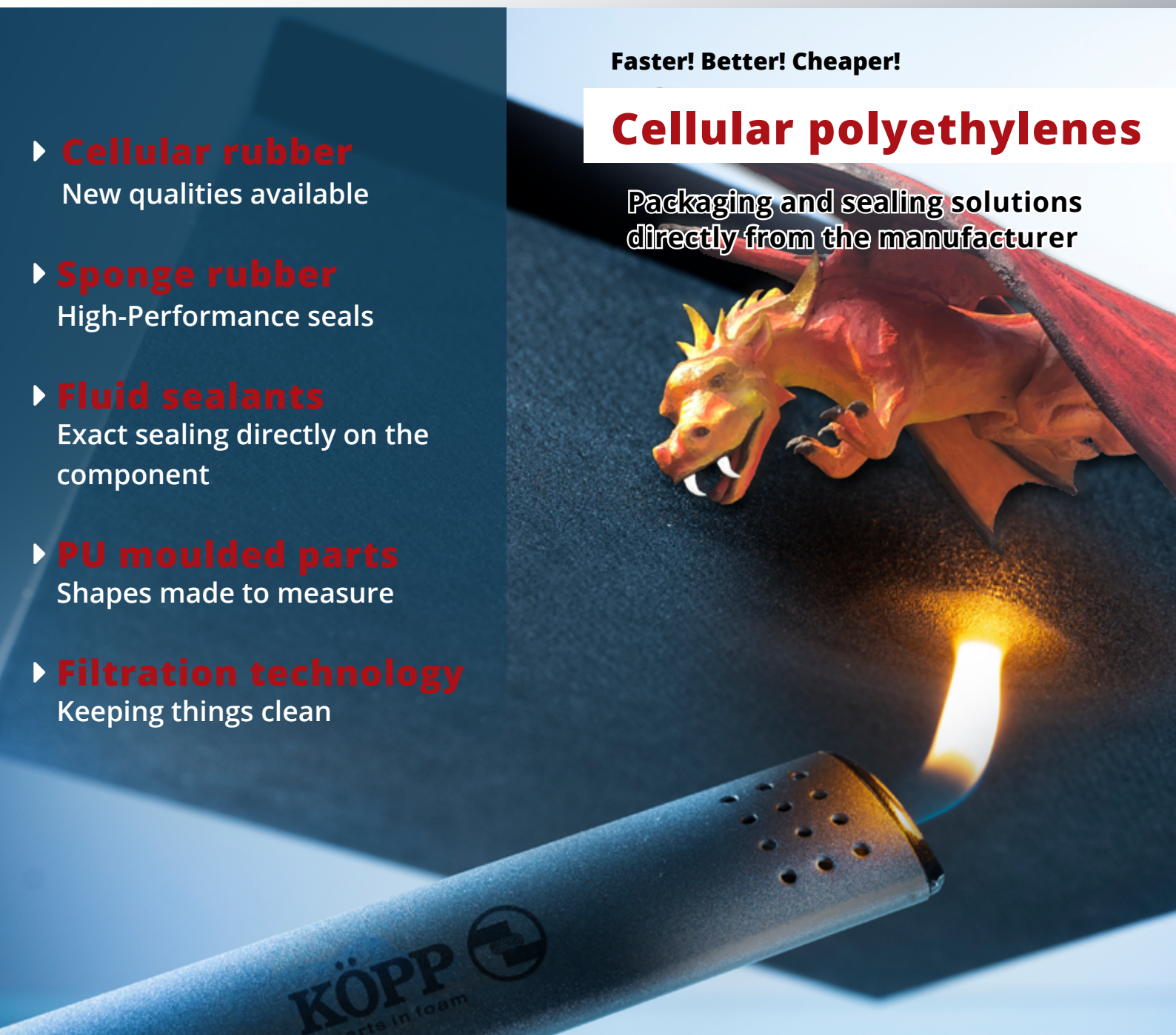
► **Filtration technology**

Keeping things clean

Faster! Better! Cheaper!

Cellular polyethylenes

Packaging and sealing solutions
directly from the manufacturer





Dear Readers,

we are KÖPP - Experts in Foam.

We may bump into each other at this year's FachPack trade fair in Nuremberg, at the Foam Expo Europe in Stuttgart or at the K Show in Dusseldorf. At all trade fairs, we will be presenting ourselves as a manufacturer of all kind of cellular materials. A brief look at this special edition of our company magazine insight. will quickly provide you with an overview of our wide range of products for the packaging, sealing, damping, insulating and filtration sectors. However, one main focus of this issue is our high-quality cellular polyethylene products that are perfect for packaging solutions.

As a manufacturer of project-specific solutions for the packaging industry, our portfolio now consists of a total of over 40 PE grades available in a variety of different characteristics, volumetric weights and colours. Our customers have always benefitted from our extensive expertise along the entire value added chain. We thus continually develop new grades required by the market, ensure cost-effective production, implement simple punching through to complex milling, and supply goods promptly and directly from our warehouse.

Our „principle of providing everything from a single source“ benefits our customers in several ways: Thanks to decades of specialist development and production knowledge, we provide tailor-made and high-quality products that we can also supply cost-effectively and quickly. Our products are purchased directly from the manufacturer.

As Experts in Foam we know the ins and outs of the market. Our aim is to not only meet the necessary requirements but also to anticipate future developments. This is why our development skills, in which we are continuously investing high-tech solutions and expertise, are so important to us. This ensures that we are continuously developing new, tailored solutions for challenging applications. Currently we have also got some interesting materials in the pipeline. We would be happy to keep you up-to-date via our Newsletter, our homepage, our insight. magazine or preferably in person. Please do get in touch.

Warm regards,

Achim Raab, Managing Director

*The production of our PE grades is completely in our hands, “
enabling us to operate totally independently of sub-suppliers.
” Our customers can thus reap double the benefits.*



WORLD INNOVATION!

K/PE29 HFFR

- ▶ halogen-free
- ▶ self-extinguishing
- ▶ environment-friendly





FULLY EQUIPPED FOR THE PACKAGING SECTOR

Including suitable PE for your application



! Our K/PE 30 is awarded

KOEPPCell®

NO LIMITS TO YOUR IDEAS
Wide range of colours and characteristics

This means that we sustainably put a lot of energy into developing and producing a variety of special grades to be able to serve as many applications and industries as possible. The standard black and white designs did not meet the requirements of many customers. The demand for conductive and static dissipative material was primarily voiced by the electronics industry, while the automotive, aviation and aerospace sectors wanted flame-retardant grades and halogen-free flame protection systems, the sports and leisure sector on the other hand wanted an EVA system that was preferably available in different volumetric weights. When it comes to the colour, there are virtually no limits to the creativity of our customers: In addition to black and white, we now also offer blue, green, yellow, red and silver/grey based on our white K/PE 35, K/PE 45 and K/PE 70 grades.

42 finely structured PE grades in different colours, volumetric weights and designs: That is the current state of our polyethylene range that we produce in-house and which we particularly supply to customers in the packaging industry. Polyethylene has excellent characteristics. It has virtually no smell and low emission values, is heat malleable and can effortlessly be cut, split, punched or lasered. Moreover, our PE appeals with an attractive price and the usual KÖPP quality.



Standard grades are predominantly used for packaging solutions. It is not just the colour of these grades that vary, the volumetric weights can range from 20-70 kg, which ultimately affects the rigidity of the material and thus plays a decisive factor when it comes to product protection.

Special grades used to protect electronic components, for example, are also being requested more frequently.

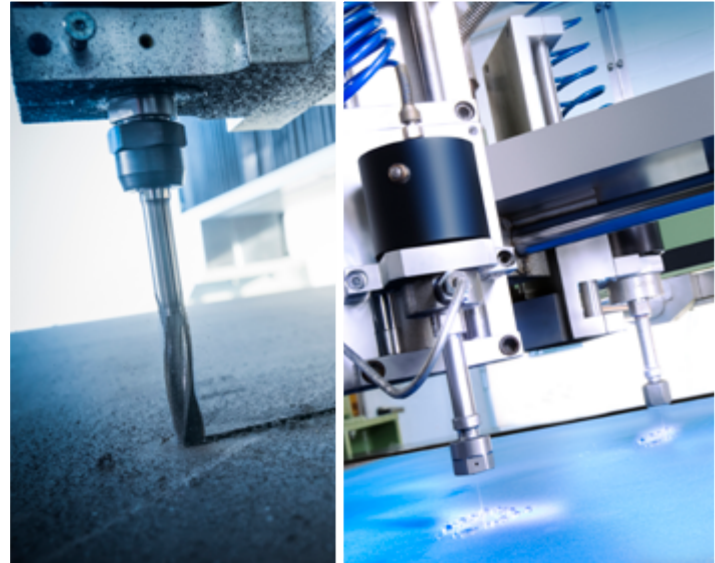
Tested and approved by independent institutions

To be able to ensure that our products really can meet customer requirements, we have had many tests performed by independent parties. We particularly wanted to be certified in accordance with the guidelines of the federal government of Germany. With our block foam polyethylene K/PE 30, we are producing the first and only PE foam in the world that can carry „The Blue Angel“ seal of quality.



MANUFACTURER AND PROCESSOR
From semi-finished to finished parts

We supply PE in a block size of 1,200x2,100x110 mm, although this can be split, cut, laminated and coated. A variety of processing methods can be implemented. We can mill moulded parts accurately in accordance with your specifications, such as different case inserts, and can laser-engrave your company logo if you like.



Special grades of our PE range

| Quality (trade name) | Properties | | | | |
|-------------------------|------------------------|-----------------|-----------------------|----------------------|-----------------------|
| | Temperature resistance | Thermo formable | Electric conductivity | Electric dissipation | Fire behaviour |
| K/PE 30A | up to 100°C | x | | | |
| K/PE 35A | up to 100°C | x | | | |
| K/PE 35AT | up to 115°C | x | | | |
| K/PE 35FR | up to 100°C | | | | UL94 HBF |
| K/PE 40CN | up to 100°C | | x | | |
| K/PE 40SD | up to 100°C | | | x | |
| K/PE 45FR | up to 100°C | | | | UL94 HBF |
| K/PE29 HFFR | up to 100°C | | | | FAR 25.853 & UL94 HF1 |

Tested and Approved

- The Blue Angel
- Odour test as per VDA 270
- VOCs according to VDA 278 → 643 µg/g
- TÜV test for harmful substances
- Thermal conductivity value 0,032 W/m.K.
- Fire behaviour in accordance with CS-JAR-FAR 25.853, DIN 4102-1 (UL94 HBF) and UL94 HF1
- Conformity in accordance with (EG) Nr. 1907/2006 (REACH)
- Conformity in accordance with guideline 2011/65/EG (RoHS)
- „toy standard“ EN 71-3

PROCESSING



Cellular polyethylene



Faster! Better!
Competitive! KÖPP
experts in foam

EVA (ethylene-vinyl-acetate) is excellently thermoformable with very good mechanical properties. It combines the thermoformability of a PE with the mechanical properties of rubber.

Ideally, our K / EV is suitable for sports and leisure applications, e.g. Fitness mats / insulating mats.

Our personal guarantee

We guarantee that we will provide the same grade PE for your packaging faster and more competitively priced than any other manufacturer.

Compare and see for yourself – KÖPP only saves on costs not service.

preisbrecher@koepp.de

Cellular rubber

A solution for many markets



Cellular rubber has been associated with KÖPP for 80 years. As a manufacturer, trader and processor of the material, KÖPP has effectively influenced the quality of this all-round product for seal and damping applications and continuously developed it further and optimised it in accordance with the high requirements of its customers.

The closed-cell structure of cellular rubber makes it the perfect material for a variety of applications meeting the highest requirements relating to the sealing function, damping, compressibility and processing options. Due to its high level of reliability, KÖPP cellular rubber is now used in virtually every area of

life. Regardless of the industrial sector – structural engineering, mechanical engineering and/or the textile industry – other applications have been added over the past decades particularly those encompassing aspects of environmental awareness and energy efficiency.



CUSTOMERS ARE OUR MAIN FOCUS From development through to processing

Currently, KÖPP uses the registered trade name KOEPPCell to supply its customers with a total of 21 grades in different volumetric weights from EPDM, NR and CR elastomer groups. The latest developments include peroxide-linked EPDM foams, a high-quality EPDM-PE blend and the semi-closed cellular grade EPDM-SC-W that gives the foam unique characteristics.

With its extensive portfolio, KÖPP focuses closely on the requirements of its customers and therefore also offers special grades. Tailor-made solutions have always been part of the company's philosophy. This is also reflected in the processing. As a processor of our own block material, KÖPP is always able to prepare materials for our downstream



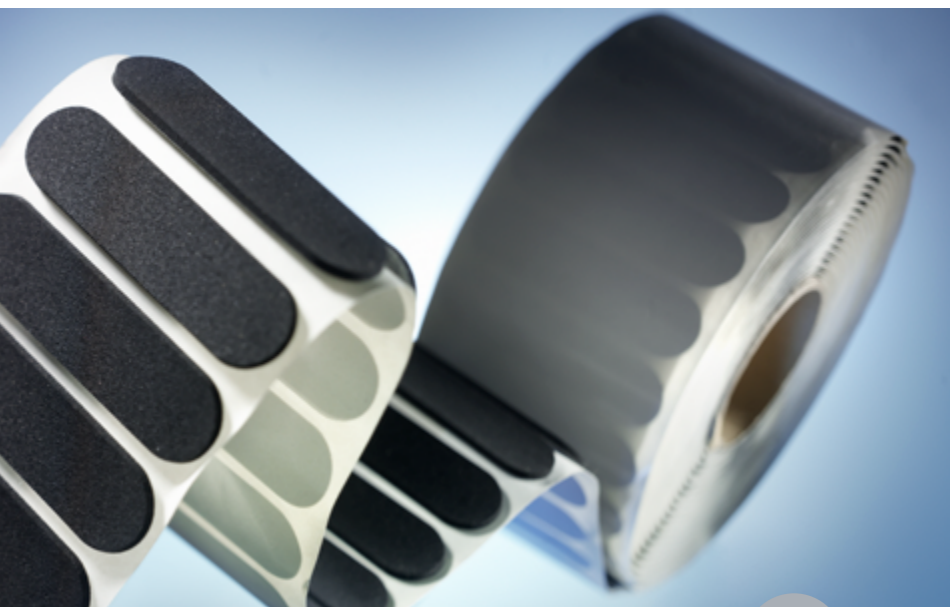
customers in such a way that they can be directly integrated into their production processes – as sheets or endless roll products, precisely split from a thickness of 0.8 mm, with adhesives applied upon request, cut, punched or milled.

UNIQUE AND ONLY AVAILABLE FROM KÖPP EPDM-SC-W

- Lightweight semi-closed cell structure, pure EPDM with 100 kg/m³
- Perfect for acoustic applications
 - Sound absorption
 - High damping measure when used as a seal
- Unique pore structure
- Watertight during U-profile test when compressed by more than 40% (VW TL520-65)
- Excellent „Touch and Feel“
- In blocks, sheets and rolls

PROPERTIES TO MEET EVERY NEED CR and its Qualities

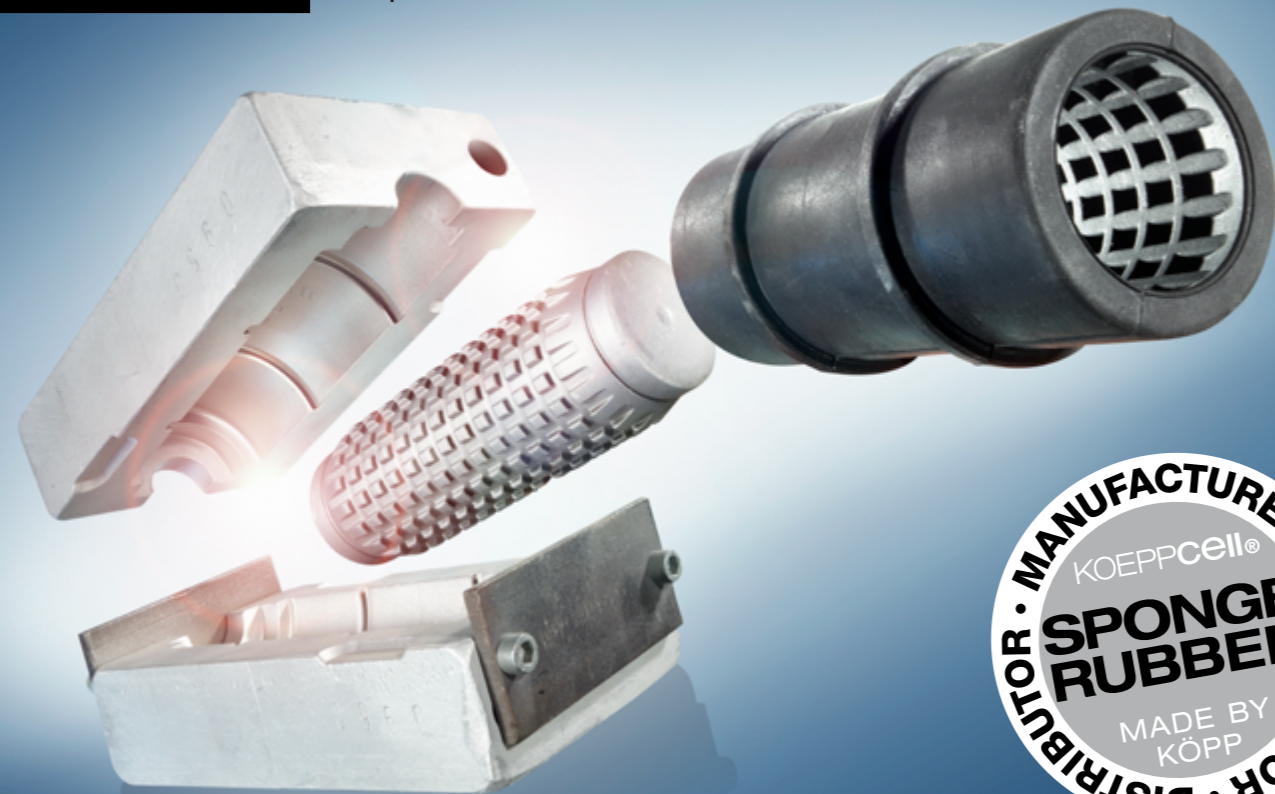
| | |
|----------------|--|
| EPDM: | Universal application, sulphur and peroxide-cured |
| NR: | Extremely elastic |
| CR: | Excellent resistance to chemicals |
| EPDM-PE: | High-quality blend; unbeatable price, heat malleable |
| EPDM-CR-Blend: | Excellent chemical resistance, perfect price |



Properties of our Cellular rubber qualities



| Quality (trade name) | | Chemical properties/resistance | | | | | Mechanical properties | | Physical properties | |
|-------------------------|--------------------|--------------------------------|----------|-------|--|------------------|--|-----------------|------------------------|------------------|
| | | Ozone/Elements | Alkalies | Acids | Mineral oil - Petrol Diesel - Biodiesel | Water (at 100°C) | Good tensile strength and good elongation at break | good DVR values | Temperature-resistance | Flame-resistance |
| EPDM | EPDM-SUW | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓ |
| | EPDM-W | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓ |
| | EPDM-L | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓✓ | ✓✓ | ✓ |
| | EPDM-S | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓✓ | ✓✓ | ✓ |
| | EPDM-L-HT | ✓✓✓ | ✓✓ | ✓✓ | ☒ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ | ✓✓ |
| | EPDM-S-HT | ✓✓✓ | ✓✓ | ✓✓ | ☒ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ | ✓✓ |
| | sulfur free | EPDM-SUW/ perox | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓ | ✓ |
| | | EPDM-W/perox | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓ | ✓✓ | ✓ |
| | | EPDM-L/perox | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓✓ | ✓✓✓ | ✓ |
| | | EPDM-S/perox | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓✓✓ | ✓✓✓ | ✓ |
| | blend | EPDM-PE- Blend | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓✓ | ✓ | ✓✓ | ✓ |
| | | EPDM-CR-L | ✓✓ | ✓✓ | ✓✓ | ☒ | ✓✓ | ✓✓ | ✓✓ | ✓✓ |
| | | EPDM-CR-S | ✓✓ | ✓✓ | ✓✓ | ☒ | ✓✓ | ✓✓ | ✓✓ | ✓✓ |
| | semi closed | EPDM-SC-W | ✓✓✓ | ✓ | ✓ | ☒ | ✓✓ | ✓✓✓ | ✓✓ | ✓ |
| NR | ZK/NR-L medium | ✓ | ✓ | ✓ | ☒ | ✓ | ✓✓✓ | ✓✓ | ✓✓ | ✓ |
| | ZK/NR-S firm | ✓ | ✓ | ✓ | ☒ | ✓ | ✓✓✓ | ✓✓ | ✓✓ | ✓ |
| | ZK/NR-S extra-firm | ✓ | ✓ | ✓ | ☒ | ✓ | ✓✓✓ | ✓✓ | ✓✓ | ✓ |
| CR | ZK/CR-L | ✓ | ✓✓✓ | ✓✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ |
| | CR-M medium | ✓ | ✓✓ | ✓✓ | ✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ |
| | ZK/CR-S firm | ✓ | ✓✓✓ | ✓✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ |
| | CR-F firm | ✓ | ✓✓ | ✓✓ | ✓ | ✓✓ | ✓✓ | ✓✓ | ✓✓✓ | ✓✓✓ |
| excellent: ✓✓✓ | | | | | very good: ✓✓ | | | good: ✓ | limited suitable: ☒ | |



Sponge rubber

OUR HIGH-PERFORMANCE SEALS

KÖPP is the only European manufacturer to produce high-quality sponge rubber solutions for the global market in Germany. Some moulded parts, profiles or round cords and rings are manufactured by hand. Quality rather than mass production always applies! And that is certainly necessary, as sponge rubber seals are primarily used for challenging applications. Due to diverse technical properties, the widest range of formulas and production variations, sponge rubber offers customised solutions like hardly any other material is capable of doing – suitable for use as a precision seal, sound insulating element or elastic vibration damper to protect easily damaged goods.

Its success is down to its properties

In contrast to cellular rubber, sponge rubber has a mixed open and closed cell structure, which in addition to high compression elasticity also has good resilience properties. Even under light pressure, sponge rubber shapes itself closely to all surrounding surfaces making a perfect seal with a waterproof external layer. By using relevant mixtures and changing the density, we can accurately determine the softness of the sponge rubber profiles, its resistance to different external influences and media.

Progress through development competence

The success of the sponge rubber line is largely down to the development work – a major focus in the company. KÖPP specifically invests in the latest lab technology and particularly in outstanding expertise. The team of qualified chemists is always working on mixtures that the market demands. Sealing power, softness, resistance to the widest range of external influences such as oil, sulfur, heat, ageing or urea – everything is just a question of the right mixture.

AT A GLANCE

Technical Properties

- Excellent sealing properties
- High compressibility
- Good insulation properties
- Easy to work
- Mixture-dependent high temperature and ageing resistance (EPDM)
- High flame retardancy rating and high resistance to oils (CR/NBR)
- NR, EPDM, CR, NBR, HNBR, VMQ, FPM

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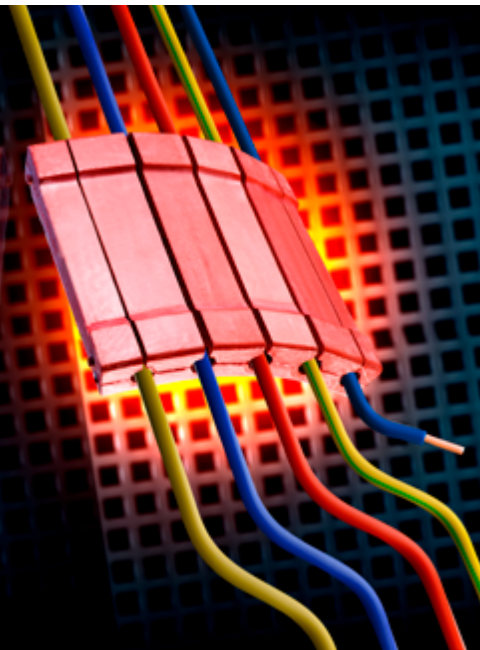
Moulded parts made of silicone or PU

NOTHING IS IMPOSSIBLE!

KÖPP uses high-quality casting machines to accurately produce made-to-measure elastomer, silicone and hot PU moulded parts for a variety of applications, including for the automotive sector as an insulation element, to guide energy lines, for acoustic uncoupling or as a seal in the electrical, medical or food production industries.

LSR silicone injection moulding

High-quality and industry-suitable injection moulding products made of liquid silicone (LSR = liquid silicone rubber) in different hardness, colours, surface structures or shapes are permanently elastic, highly temperature-resistant to 250°C, mechanically stressable, anti-torsion, media-resistant as well as cold-resistant to -40°C. Hot PU can also be shaped using certain processes.



Moulded parts using a low-pressure process

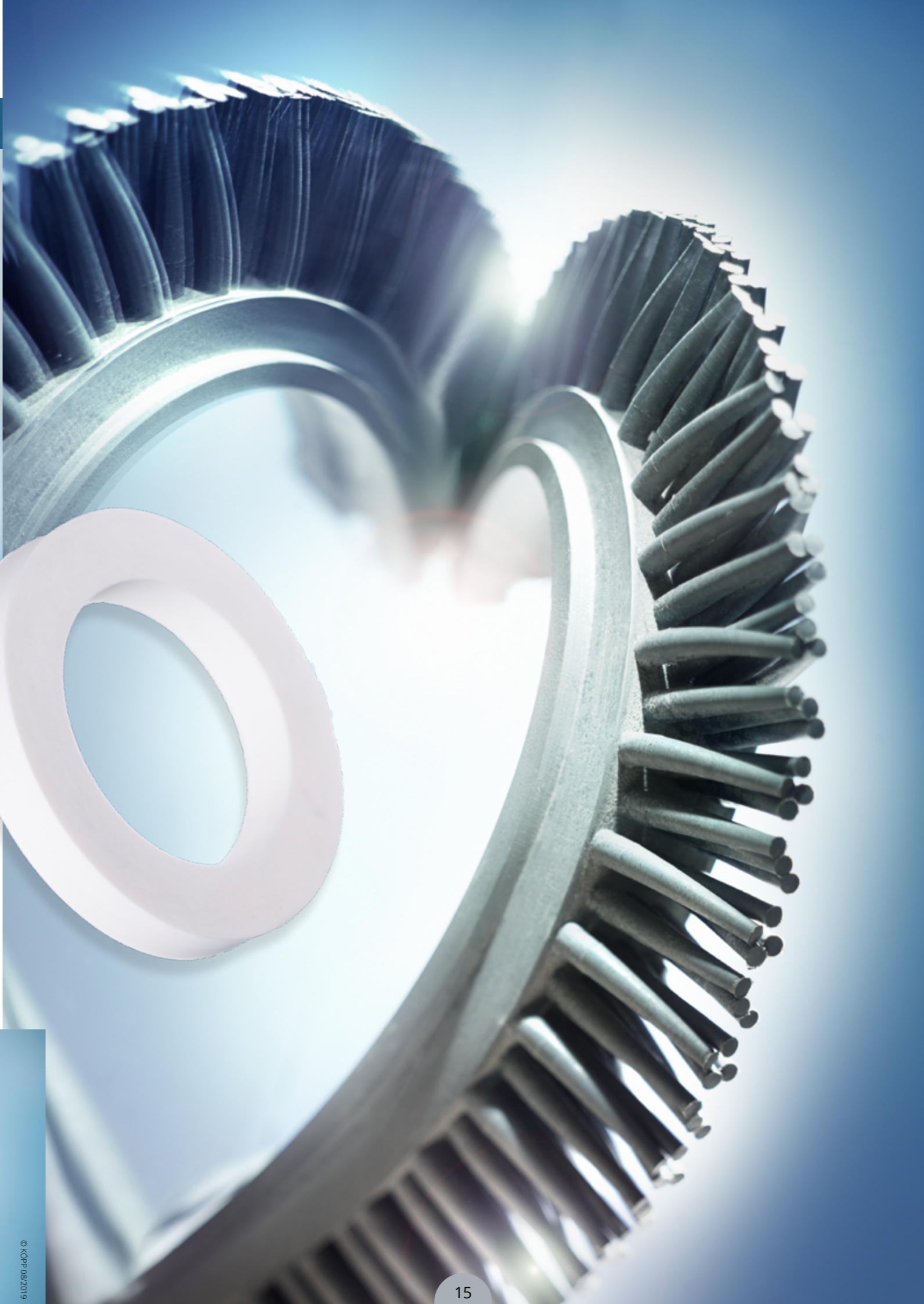
In the low-pressure process, a 3D mould is initially milled from aluminium or steel, silicone or PU is then poured into it and is hardened using heat. Structures with complex undercuts are also possible. Vacuum casting can also be used, if required.

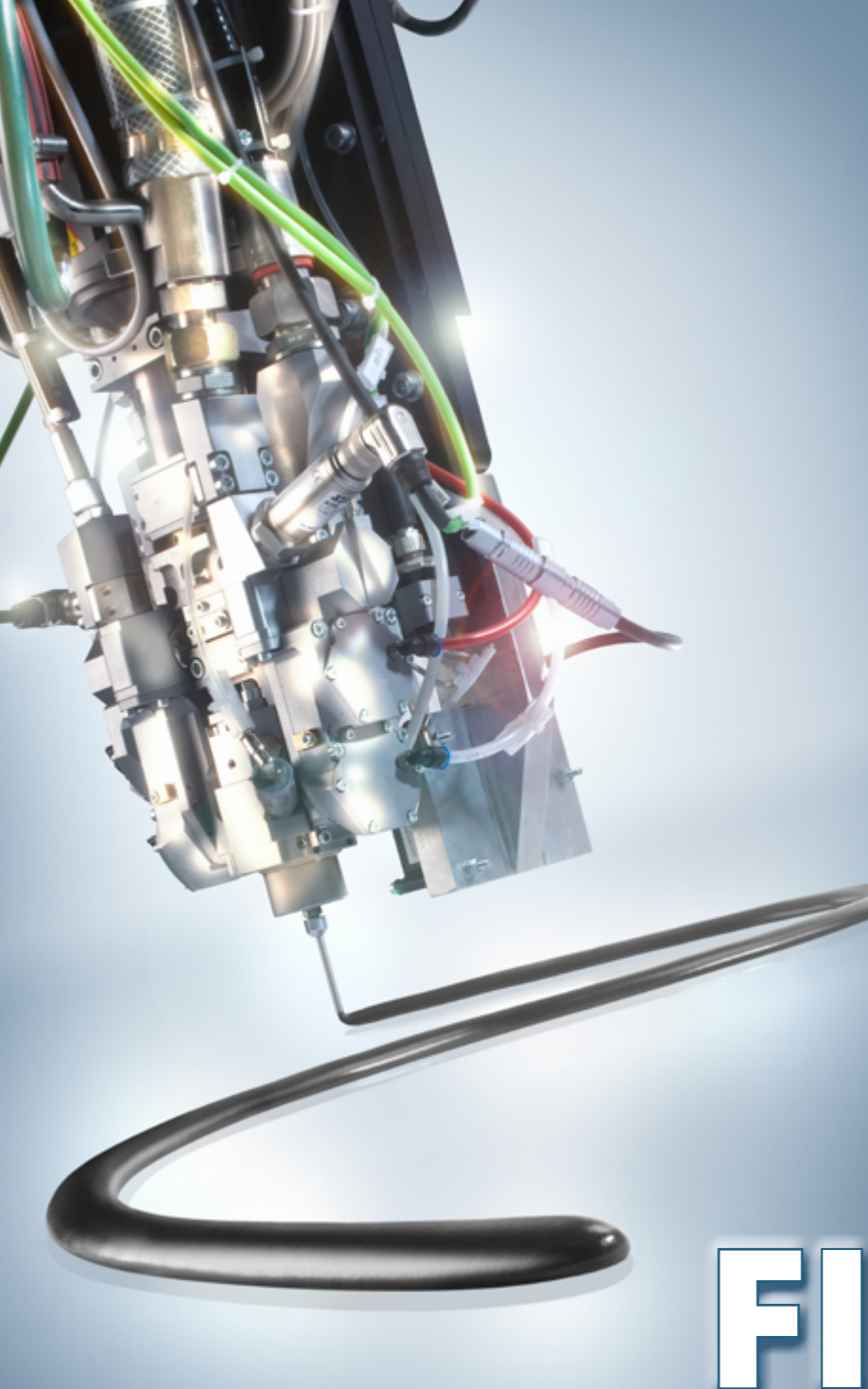


AT A GLANCE Most important benefits

- Highly complex structures with undercuts possible
- The processing of different materials
- Formulas can be freely set
- Any volumetric weight
- The widest range of properties in terms of surface structure and functionally are possible
- Vacuum casting and large-scale casting up to 10.000 cm³ possible

Customers from the construction or sports industry cast components of up to 10,000 cm³. We rely on a large variety of materials during this process. PU, hot PU and silicone give the components different properties. Thus, hot PU provides particularly reliable protection against abrasion, is resistant to physical effects and is highly elastic.





FIP(F)G

SEALING, GLUING, MOULDING

Perfect liquid seals – directly on your component

Accurately and securely connected to your workpiece, precisely dimensioned, extremely durable and cost-effective seals: Supplied by KÖPP for more than 20 years!

With its unique fleet of dosing machines, KÖPP produces foam seals and single component solutions at both of its sites in Germany. Your requirements and technical specifications for your application play a key factor when selecting the materials. We work with you to agree upon the specific density, hardness and component material to meet your requirements. The option of moulding components (e.g. moulding of electronics) is becoming increasingly popular.

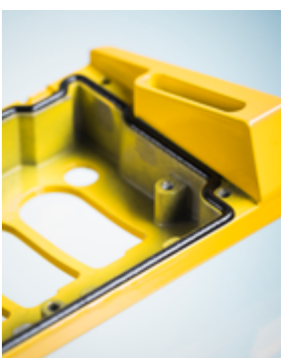


Our technology

The possibilities our technology has to offer are as extensive as the requirements for seals stipulated by our customers. This means that providing technical advice on site is essential. Thanks to our experience and technical expertise, we always find the perfect solution by working with our customers.

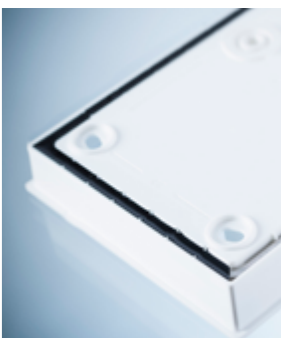
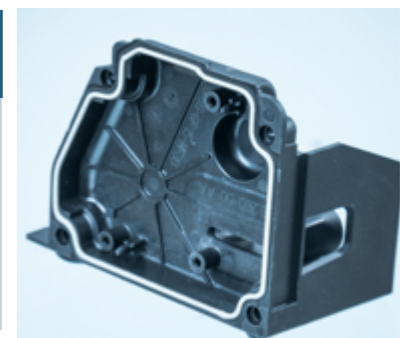
Outsourcing flexibility

An increasing number of customers rely on outsourcing to remain flexible. Thanks to our extensive range of storage and logistic capacities, an increasing number of series manufacturers are outsourcing their process responsibilities and entrust us with their workpieces – often several 100,000s of components a year. Efficiency that pays off.



AT A GLANCE KÖPP technology

- ▶ 1K liquid sealing system, adhesive technology and moulding
- ▶ 2K polyurethane foam sealing systems
- ▶ 2K foam silicone **NEW!**
- ▶ 4K sealing systems (elastomer-covered PU foam seals)





Filter technology



Filtering equipment

Keeping things clean

KÖPP has supplied individual solutions for liquid filtration, ventilation and aeration, sound insulation and dust filtration since 1961. Our company appeals both in terms of quality and price. A big advantage is that we stock everything – filter equipment, filter cartridges, spare parts and filter materials.

To ensure we can always offer our customers the best solution, we have deliberately established a wide range of high-quality water filters, protective filters for heating

water, magnetic filters and special filters. With our own range of filter bowls and filter heads, customers always receive the expected high KÖPP quality at an attractive price. As a manufacturer of filter cartridges for depth filtration, we have many years experience in producing and processing filter equipment and materials. You too can benefit from our expert knowledge throughout the entire filtration process. We will be happy to help you.

filter@koepp.de



Filter materials

SUITABLE FOR A VARIETY OF APPLICATIONS

Our filter materials

KÖPP has always relied on the tried and test VYON® filter material – an open-pored, low-pressure polyethylene with thoroughly positive features. Different pore diameters enable accurate filtration at different filtration ratings. Combined with our broad processing range, our customers benefit from perfect solutions for a wide range of different applications. We also produce moulded parts in accordance with customer specifications under our registered trademark GURON®.

Applications (Examples)

- Medical equipment, e.g. in analytical equipment used to filter liquids
- Food industry, e.g. in coffee machines, water filters
- Automotive, e.g. fire proofing in vehicle battery
- Sensor and measuring technology, e.g. as silencer in diaphragm pumps or compressed air applications
- Vacuum technology, e.g. in vacuum switches, VAC sheets, flow control valves

Characteristics

- Physiologically safe: perfect for the food and drink sector, standard-compliant
- Chemical-resistant against most acids, bases and organic chemicals
- Porous, versatile applications
- Solid, lightweight, pliable (moulded part)
- Available with a variety of surfaces: hydrophobic, hydrophilic and self-sealing



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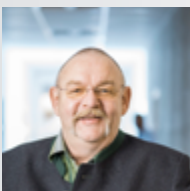
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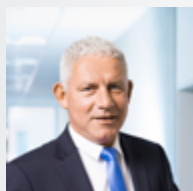
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PHILOSOPHY

Independent, dynamic, needs-based. As experts in foam, we are able to supply our customers with the perfect, high-quality and cost-effective solution for their application quickly and flexibly. As a manufacturer, we operate completely independently, have extensive storage facilities, develop materials based on market requirements and deliver many variations of our products based on customer specifications. We do not just supply polyethylene and cellular rubber as a semi-finished product but you can also order finished parts thanks to a wide range of processing options.

LOCATIONS:

Headquarter
Aachen

Subsidiary
Bovenden

Subsidiary
Rumänien

Joint Venture 50/50
Indien



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SC KOEPP Romania S.R.L.

Arinis, Maramures · Romania

Roop KOEPP Foam Technologies Pvt. Ltd.

Manesar, Gurgaon · India

COMPANY PROFILE

Founded in 1938, KÖPP is now one of the leading manufacturers and processors of cellular rubber, cellular polyethylene and sponge rubber. The broad range of the allround company also includes liquid seals, PU moulded parts and filtering technology. The unique and broad range of products provided by the specialist for the sealing, damping, insulating and filtration sectors, ensures that KÖPP has an extensive network and over 300 employees that are recognised experts in foam.

solutions



in foam