



# Are you concerned about seals?

That's our bread and butter!



*"OVE stands for surface  
refinement of elastomers"*

# Are you looking for C-class parts that can perform A-class functions?

» We turn elastomer seals into a high-performance premium product – and we always have!

The variety of functions that seals must perform should not be underestimated. Although they are classic C-class parts, they are often expected to perform A-class functions, such as balancing the competing demands for outstanding sealing performance, low friction and minimal wear.

Since improving elastomer seals is our bread and butter, we are able to significantly extend limit values in all respects, improving performance and turning seals into premium products.

OVE got its start in 1990 as a classic garage start-up, and has since developed into an experienced, innovative and high-performing company. Located in Weil im Schönbuch in the Swabian region of southwest Germany, the owner-managed family company with around 30 employees refines the surfaces of elastomer seals to make them even more effective. We achieve this by cleaning, coating and treating the seals in accordance with customer requirements, and we round out our offer with comprehensive, customer-oriented service.

The company's founder, Bernd Friedrich, was initially driven by his desire to prevent friction issues using MoS<sub>2</sub> powder or silicone oils. In 1995, we applied plasma technology to the field of elastomers. This marked a milestone for the company, as it enabled deep cleaning and the production of PWIS-free surfaces.

As OVE continued to develop, further milestones followed, including innovations to address the problems caused by excessive seal-related friction as well as other ground-breaking successes. With its environmentally friendly, low-solvent anti-friction coating, the pioneering company has achieved unbelievable improvements.

In 2001, OVE became the first company in the world to series produce seals with an environmentally friendly anti-friction coating applied by a machine. Pre-treatment with low-pressure plasma is an essential step in this process.

The company's development is characterised by continual organic growth accompanied by increases in capacity. Today, our dedicated team processes approximately 80 million elastomer seals for industrial use each month, making us one of the leading European companies for the surface refinement of elastomers and plastics.

Over the years, we have always been guided by our pioneering spirit combined with our drive for further innovation. This keeps us flexible and agile, so that we are always ready to meet the constantly evolving challenges and provide a cutting-edge technical solution that fulfils your specific requirements.







*“OVE is a leading  
European company”*



*“OVE significantly increases  
the service life of elastomers”*





## Do you wish your seals could last forever?

» With our help, they can come close!

The service life and functionality of even the best seals are limited. As everyone knows, the competing demands for outstanding sealing performance, low friction and minimal wear can never be fully reconciled. At best one or more individual parameters can be improved or limit values extended.

Even a seal that is working perfectly may have shortcomings that can be minimised or eliminated. For example, excessive friction may lead to stick-slip phenomena, impair dynamic functions or make assembly more difficult.

Our coatings help correct these issues. We coat seals with a wafer-thin, highly elastic anti-friction coating that is water-based, environmentally friendly and available in both transparent and coloured varieties. This makes it possible to reduce friction, facilitate assembly – especially with automated feeding – and better differentiate between seals.

By creating both defined friction behaviour and 50% less friction on average, we make stick-slip phenomena a thing of the past. Breakaway torques are significantly reduced and seals under dynamic stress are optimized in terms of function, economy and the environment.

Since OVE has been focusing on elastomer seals and their behaviour every day for many years, we know the appropriate measures to take to counteract just about any limitation. If we don't already have a solution that meets your specific requirements, we will draw on our wealth of experience to develop one.

With our water-based anti-friction coating systems, we create dry, touch-proof and clean surfaces on elastomer components. As a result, you may not be able to remember just how long your seal has been working perfectly.





## Is your need for technically clean seals increasing?

» When it comes to cleanliness, we go deeper!

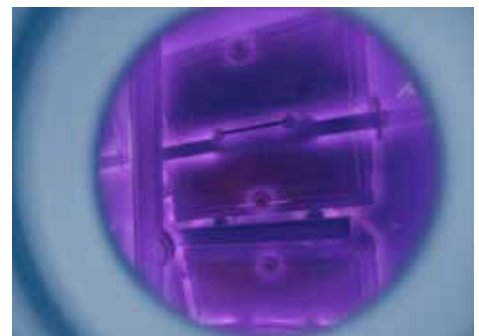
Since 2000, the criterion and concept of “technical cleanliness” has developed into an important indicator of quality in the automotive and OEM industries. And not just there – requirements for consistently clean components and component groups are also well established in other industries. This is especially true for elastomer seals.

When sealing components are delivered, they are often dirty or stuck together, which makes assembly more difficult and can impair the functionality of the seals. To reduce friction and facilitate assembly, seals are typically oiled, greased or powdered with talc. And while too much lubricant can contaminate the components and assembly equipment, too little can lead to damage when the components are installed.

At OVE, we take a deep look at cleanliness, drawing on a variety of special cleaning methods to clean seals. We start with a thorough wet cleaning followed by gentle drying to reliably remove production residues from elastomer surfaces.

For an even more immaculate result, we turn to plasma cleaning. OVE was the first company to apply this technology to elastomers. During plasma cleaning, elastomer components undergo an additional deep cleaning, which removes substances that cannot be eliminated by washing alone. The result is a true deep clean that is virtually free of residues or particle contaminations which could affect functioning.

This approach also allows us to supply PWIS-free components. At OVE, we use plasma cleaning to remove paint-wetting impairment substances (PWIS), such as silicones, oils, grease and substances containing fluorine. Because these substances can cause imperfections in the varnish layer and prevent an even varnish, the automotive industry in particular requires that the parts it uses be PWIS-free. While typical cleaning processes are insufficient, our plasma treatment ensures that components remain free of PWIS. This is more than just a promise, it's tested and certified. Our process to remove PWIS with plasma cleaning also includes verification of results in accordance with various factory standards such as VW PV 3.10.7, Festo FN 942010-2 and Dürer QZ 24, VDMA 24364.





*“OVE delivers technical cleanliness  
and certified PWIS-free components”*



*“OVE ensures that seals will never stick,  
are easy to feed in and can be reliably  
differentiated”*







## Do you understand the pitfalls of working with different types of seals?

### » We can prevent sticking and mix-ups!

If you are having trouble managing your seals, for example when they are automatically fed into the assembly process, this may be due to parts which are doubled up or have stuck together, or due to high friction, static charges or equipment which has been contaminated with lubricants.

Another potential problem is that sealing rings may get mixed up. Because they are all the same colour, seals can be difficult to distinguish, but confusing them can have disastrous consequences. At OVE, we know how to prevent this.

Drawing on another treatment method, we harden seal surfaces: A chemical reaction with a process gas triggers micrometre-scale modifications to the surface without a coating being applied. While this has only a minimal effect on the physical properties of the elastomer, it reduces friction by an average of 50 percent

and eases the assembly of elastomer seals, meaning that lower mounting and joining forces are needed on the assembly equipment. This process also prevents elastomer seals from sticking together during packing and handling.

For further processes to prevent sticking, we turn to our anti-friction coatings. Coatings can be applied to almost all elastomers. Our range of products even includes varnishes which bond very well to silicone materials. We use these varnishes as functional coatings to colour-code seals. For example, yellow coatings are used to designate functions and applications which use gas.

With our treatment methods for elastomer seals, you can be sure that seals will never stick, are easy to feed in, and can be reliably differentiated.





## Do you value customised solutions and services?

### » We respond to your specific situation!

We use our innovative and technologically advanced processes for first-rate surface refinement of elastomers to improve the functionality and service life of elastomer seals. But that is by no means all you can expect from us.

We also offer additional comprehensive services related to surface treatments. Depending on your requirements and the urgency of your order, you can choose from our various express production services. This ensures that you can take advantage of our surface refinements, even if you are under a tight deadline. Fast and reliable delivery is a matter of course.

In order to help you smoothly integrate refined elastomer seals into your production processes, we pack and label our shipments in accordance with customer-specific packaging specifications. Manual or automated special packaging, special labelling as well as KLT container handling are also available.

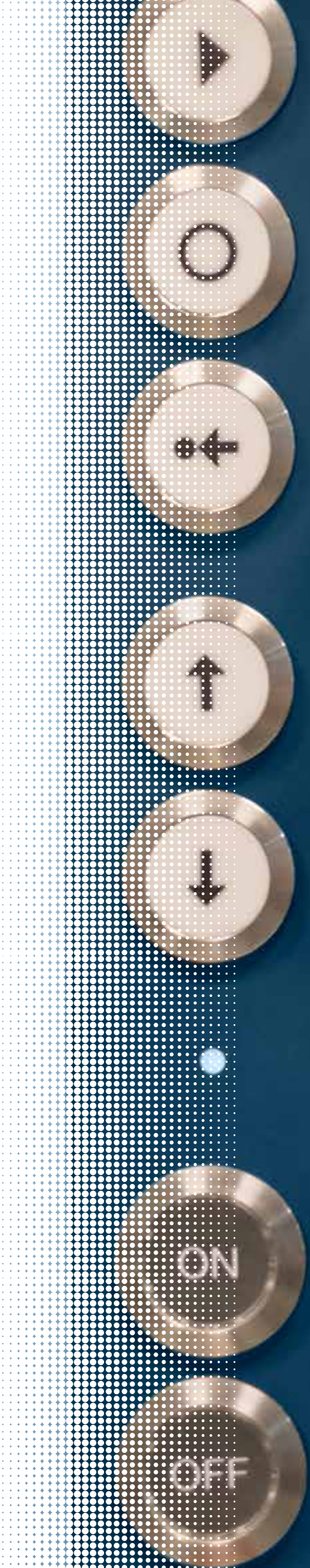
If you are a new customer, ask us for a free sample part. We are so confident of the quality of our work that we would love the opportunity to share it with you. What's more, manually coating elastomer seals is always possible, starting from a single piece.

If your quality management system stipulates quality inspections during series production, just let us know what you need and we will take care of it for you. We can carry out coefficient of friction tests, torque tests, bonding tests or PWIS tests.

Because elastomers are a highly complex material that requires intensive explanation, we also offer trainings. These are directed at field service employees, purchasers, technical consultants, design engineers and anyone else who would like first-hand information. The trainings cover: 1. The variety of possible surface modifications and coating variants for elastomers, 2. Prerequisites and necessary pre-treatments for successful coating, 3. Testing options and processes, 4. Case studies.

We want you to learn more about how our surface refinement can help your seals achieve additional functionality and a longer service life. This is what customer-oriented means to us.





*“OVE shares knowledge  
about the possibilities for  
surface refinement”*





## We've told you what we can do!

### » What can we do for you?

Rest assured that we don't just focus on our own operations, we also keep the environment in mind. Environmental aspects play a significant role in the refinement and processing of our materials. Our coating method is ecologically sound right down the line. We do not use any harmful solvents, and all of our anti-friction coatings are water-based – and always have been.

We operate a water processing plant with a closed circuit, which allows us to prepare and reuse washing water, thereby conserving energy and water. Reusing cartons from our customers helps us reduce waste, and most of our electricity demand is covered by our own solar installation. These efforts to promote sustainability have the full support of our entire team.

Our qualified team is a key factor in our ability to offer high-quality products and services. As our employees are the backbone of our company and the basis for our consistent commitment to our customers and service, their professional expertise and interpersonal skills are paramount.

Our employees are committed experts in their field, work independently and have an entrepreneurial spirit. Open and trusting communication, stream-lined decision-making processes and responsible collaboration at all levels are part of our company philosophy. That's why promoting our staff's skills and personal responsibility is so important to us and why we provide many internal training opportunities.

*“OVE refines the surfaces  
of elastomers”*

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