



Ground-breaking Solutions for Pumps and Compressors

simrit[®]

Simrit® , Your Global Technology Specialist for Seals and Vibration Control

Simrit, Your Global Technology Specialist for Seals and Vibration Control offers you a complete service package. A unique range of products and services guarantees you numerous advantages over the competition.

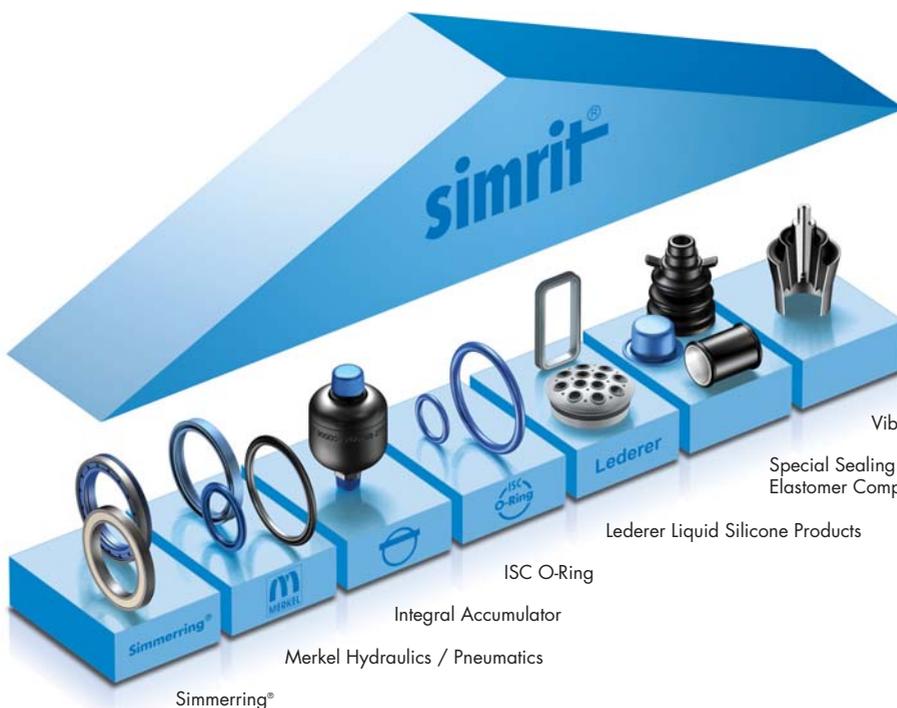
Simrit acts as a partner to general industry. Its position as a market leader is achieved through continuous research, development and manufacture. We have the world's widest range of seals and vibration control products, and can offer you solutions based on the demands of state-of-the-art technology, solutions which set standards.

This way we secure competitive advantages for you based on experience all around the world: Simrit has a presence throughout Europe, America and Asia, either directly or through its affiliated companies NOK (Japan) or Freudenberg-NOK (USA). The transfer of knowledge between these markets is incorporated directly into the Simrit service package.

With our many Simrit Service Centres and Simrit distribution Partners, we serve and supply more than 100,000 customers worldwide. Our Simrit Partners ensure rapid availability from stock. This means spare parts quickly arrive when and where they are needed. There is a Simrit Partner near you as well.

Make the most of Simrit's service package and give yourself a real competitive edge:

- + Constant innovations
- + Uniquely wide range of products
- + Strong product brands
- + Unique materials expertise
- + A wide range of value added services
- + Global cooperation and partnership



Simrit offers a complete package of products and services, including leading brands such as Simmerring®, Merkel, Integral Accumulator, Lederer and ISC O-Ring.

Vibration Control

Special Sealing Products: Bellows, Diaphragms, Elastomer Composite Parts and Precision Mouldings

Lederer Liquid Silicone Products

ISC O-Ring

Integral Accumulator

Merkel Hydraulics / Pneumatics

Simmerring®

Sealing expertise where it counts

Reliable and economical: The Simrit range of seals for pumps and compressors sets technological standards for durability and service life.

Sealing solutions for pumps and compressors must be designed to withstand a wide range of operating influences. Parameters such as pressure, temperature, mechanical stresses and media place very high demands on the durability of a seal and influence the operating reliability of the pump.

This means that efficiency in development and materials expertise are more important for developing ideal sealing solutions than in most other fields. Simrit offers outstanding technical service in the market with its experience with materials and application expertise. The application of new combination materials and the results of innovative calculation methods in the Freudenberg research centres, for example, have resulted in outstanding sealing solutions for diaphragm pumps that offer low life-cycle costs with increased operating reliability and significantly longer service life. Our goal is to increase the economy and reliability of your system.



Customised solutions for very high demands

The wide variations in application parameters for pumps mean that customised solutions for specific applications have a very high priority for our customers. As a leading specialist in technology we meet these demands with precisely customised designs. In addition, the wide range of standard solutions offered by Simrit offers a comprehensive range of sealing solutions that are immediately available for a wide variety of pump applications.

We are still working: added value with system optimisation

More than just a seal: the Simrit performance package offers comprehensive solutions going beyond the seal for optimising your systems.

The latest sensor technology in our seals for measurement of physical quantities is an add-on for important monitoring tasks, and Lube & Seal, the project run by Simrit and Klüber Lubrication, matches material and lubricant to each other at the stage of system development.

Your requirements in the operation of pumps and compressors are our

- High operating reliability
- Temperature resistance
- Media resistance
- Approvals and declarations of conformity
- Economy and long life
- Customised solutions

Customised solutions for modern diaphragm pumps

Simrit diaphragms continue to function reliably over the long term even under the highest loads.

Diaphragms in pumps and compressors are the components subject to the highest stresses, with their continuous exposure to both chemical and mechanical influences. Optimum design of the diaphragm for the specific requirements of the customer is particularly important for long-term increase in process reliability and economy.

Simrit offers innovative diaphragm technology for pumps and compressors to meet a wide variety of requirements for metering, transporting or compressing many different types of media with the wide variety of materials and designs. As the basis for your customised solution we offer pure elastomer diaphragms and also elastomers combined with

- + fabrics for reinforcement
- + PTFE foils to resist aggressive chemicals
- + metal or plastic inserts for force transfer and support

Simrit is a partner with comprehensive expertise in the area of combining the various diaphragm components into a strong compound.

An overview of your advantages:

- + high resistance to aggressive media with PTFE foil layers
- + long-term stability with fabric reinforcement
- + low life-cycle costs with extended service life
- + simplified installation with integrated metal component
- + customised material adaptation



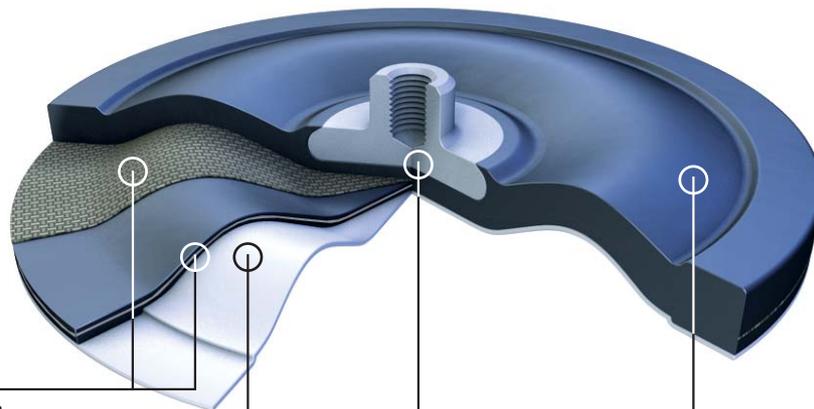
Fabric reinforcement for long-term stability

A new diaphragm design uses two fabric linings to optimise the long-term stability and the ability of the diaphragm to withstand mechanical loads. The fabric provides the required strength under increased pressure and protects the elastomer from overload. The selection of tissue materials is designed precisely for the specific application parameters in close cooperation with the customer.

Best protection by PTFE foil layers

In the case of aggressive media, which are frequently encountered with diaphragm pumps, PTFE foil coatings bonded to the diaphragm or modified PTFE foil coatings on the side in contact with the medium have proven outstandingly successful. The foil can also be designed precisely for the customer requirements.

- Special foils of electrically conductive material for ATEX-compliant units
- High functional reliability even under thermal, chemical and mechanical stresses



Fabric

- Polyester
- Polyamide
- Nomex
- Aromatic Polyamide

Foil

- PTFE
- PTFE (TFM)

Carrier part

- Steel
- Aluminium
- Plastic

Elastomer coating

- FKM
- EPDM
- AEM
- ACM
- HNBR
- NBR
- VMQ

Comprehensive solutions for displacement pumps

From the latest impeller technology to well-designed sealing components for drive unit and housing, Simrit offers a comprehensive range of products for displacement pumps.

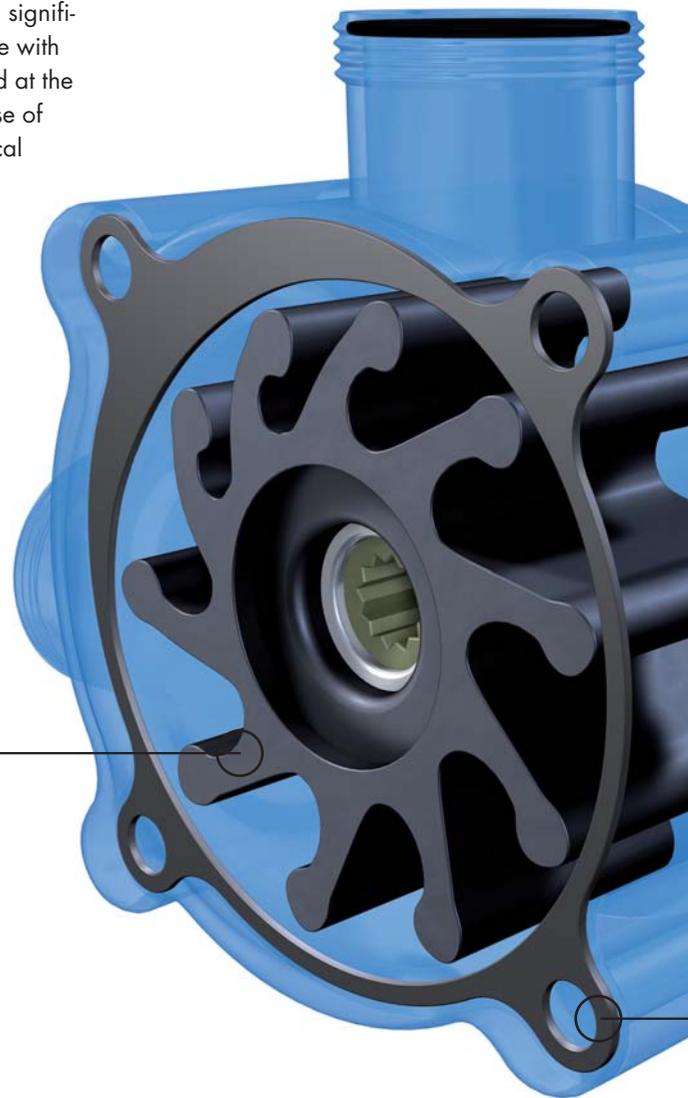
The efficiency and service life of impeller pumps has a continuing influence on the efficiency and economy of industrial processes. And that is in a wide range of applications. Simrit sealing components and impellers have the optimum materials and designs for the loads and media encountered in impeller pumps and are noted for their long life and operating reliability. The comprehensive Simrit range of products also offers ideal solutions for rotary piston pumps.

Impeller solutions

The impeller wheel is subject to high stresses from the high dynamics in impeller pumps. With the design of friction-optimised vanes and the use of special elastomers, the innovative Simrit impeller design offers a significantly longer service life with improved efficiency and at the same time allows the use of smaller, more economical drive units.

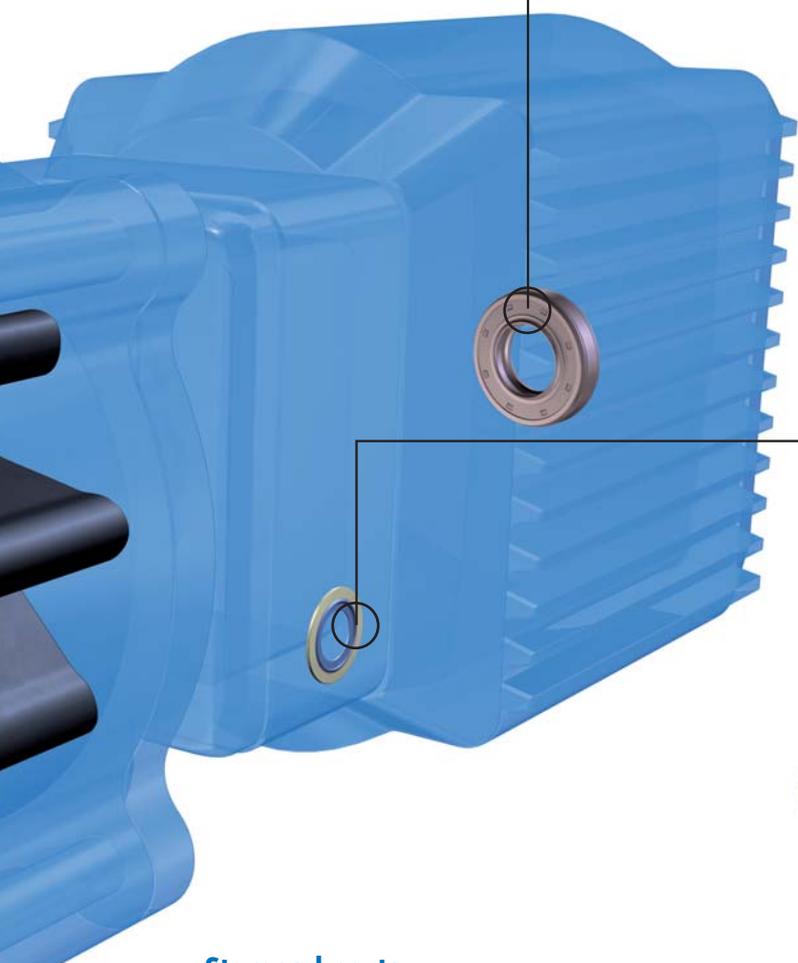
Impeller

- vane with higher resistance to wear and high efficiency with friction optimised design
- high-temperature-resistant and FDA-approved elastomer materials
- customised product solutions



Simmerring® BAUM, BAUMSL

- standard design in accordance with DIN 3760
- spring-resistant sealing lip of fluorocarbon elastomer
- high thermal and chemical demands



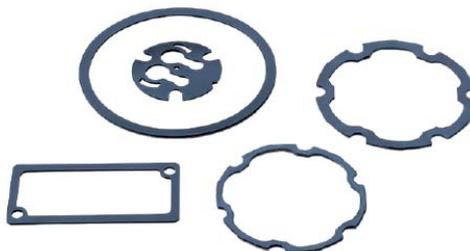
Usit-Rings

- standardised flat gasket with metal, corrosion-proof reinforcing ring
- reliable seal even under high pressures
- simple, economical assembly



Stamped parts

- flat gaskets in customer-specific design with/without ground surfaces
- economical tooling and production costs
- unique wide range of materials



Product overview

The Simrit product range with more than 16,000 standard products and a wide range of customised solutions offers additional outstanding seal and oscillation components for pumps and compressors.



Merkel packing glands Kombilon 6742

- good sliding properties
- high elasticity
- high resilience



Machine bearings

- protection of spring components from damage and direct oil spray
- reduced setting in Z-direction
- RoHS-compliant
- When re-used the elastomer spring components are replaceable



Simmerring® PPS

- pressure resistant (> 1 bar) for use in hydrostatic drives, hydraulic motors and pumps
- less attrition
- higher service life with patented dust lip



ISC O-Ring

- individual solutions for all applications
- long service life
- clearly defined and specific compound recipes
- coating for friction reduction and ease of installation



Gaskets with flexible board

- "compress" and "transmit signal" function in one module
- safe and economical installation
- variety of customised product solutions are possible

Leading material technology makes the difference

Innovative products with the Simrit brand are based on our worldwide leading expertise in materials and offer optimum reliability in their range of applications.

Simrit sealing components in pumps and compressors are, depending on the application, subject to extreme thermal, mechanical and above all chemical stresses. In addition, within the wide range of applications it is primarily the materials that must be customised to the specific requirements. This starting point requires a high degree of materials expertise and competence in consultation on product design.

Simrit has been developing innovative products and materials for more than 60 years. Two hundred and fifty technicians and chemists work in developing material solutions specifically designed for the applications of our customers and for long life and reliability.

Unique variety of standard materials

We produce approximately 15,000 tonnes or over one billion seals every year. With our unique material range of more than 1,500 combinations of 850 different raw materials, Simrit offers the ideal combination for every sealing



and oscillation application. We also have a global material database for customised material selection. The database combines our expertise and experience with solutions that have previously been implemented throughout the world to make a network of technological achievements available to our customers.

Certified and approved

Rigid requirements apply for the use of materials in many markets for pumps and compressors. Simrit offers the relevant approvals and declarations of conformity.

Approvals and declarations of conformity:

- 3-A[®] Sanitary Standard
- ACS, Accréditation de conformité sanitaire
- BfR, German Institute for risk assesment
- DVGW, German Gas and Water Association
- FDA, Food and Drug Administration
- KTW, plastics and portable water
- NSF, National Sanitation Foundation
- USP Plastic Class VI, United States Pharmacopeia
- WRAS, Water Regulations Advisory Scheme
- and many others

The right solution for every application



Customised solutions by Simrit provide the optimum conditions for high operating reliability and functioning for all types of pump and compressor applications.

Pumps and compressors transport liquid and gaseous media, and these functions offer scope for an almost infinite range of applications. Whether you are looking at heating technology or transport of highly aggressive media, there are many different demands on systems - particularly on key components such as seals. Simrit with its technological expertise and as a world leader in sealing solutions offers an outstanding range of solutions to meet all customer requirements.

Sealing concepts specifically designed for the transported media

In the chemical industry this frequently means that the seal material comes into contact with highly aggressive media, while the food industry demands materials that can meet the rigid demands for hygiene.

Concrete pumps or pumps used in the mining industry also require long-term solutions that can withstand mechanical stresses. Maximum operating reliability is essential, particularly in shipping and fire extinguishing systems. Simrit meets this variety of demands with sealing solutions specifically designed for the application. Our expertise in materials makes it easy for us to supply the right material quickly and efficiently.

We also obtain special approvals and declarations of conformity for applications such as potable water systems or systems subject to high temperatures, for example, cleaning processes for industrial installations. This is the base for a comprehensive range of sealing components that ensure reliable operation of your complete system.



The right solution for all types of applications

- gardening
- construction and civil engineering
- water processing
- irrigation and drainage
- heating
- cleaning processes
- fire extinguishing systems
- hydraulics
- swimming pools
- sanitary facilities
- shipping engineering
- water supply
- mining
- power plants
- and many others

Performance that you can rely on

Rely on us - the Simrit performance package for pumps and compressors offers a high degree of function and reliability with added economy.

Our sealing solutions are precisely designed for your applications and set the pace in technology in every component. Our services provide maximum operating reliability, significant extension of service life, high efficiency and simplified systems. These features not only help optimise your processes but they also offer significant economic advantages.

Impeller pumps as an example of customer value

The development of new impellers in close consultation with the customer makes it possible to increase the pump efficiency and service life.



The solution: Simrit develops friction-optimised impeller vanes and matches the product design and the elastomers to the specific customer requirements.

Added benefit: the new design allows the customer to implement smaller, more economical drive units.

What can we do for you? If you are considering optimising your systems or are confronted with complex applications, talk to us. We look forward to hearing from you at any time.

Even greater efficiency in the future: the target of our research and development is to maximise the economic efficiency of our impellers for your specific area of application.

Application position	standard market solution	Simrit solution
Impeller service life p.A.	1,500 hours	3,000 hours
Impeller price per unit	20.00 EUR	30.00 EUR
Spare parts requirement p.A.	5,000 pieces	2,500 pieces
Total costs p.A.	100,000.00 EUR	75,000.00 EUR

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Simrit Services

- ▶ Constant innovations
- ▶ Uniquely wide range of products
- ▶ Strong product brands
- ▶ Unique materials expertise
- ▶ A wide range of value added services
- ▶ Global cooperation and partnership

Your Benefits

- ▶ Technological edge
- ▶ All from one source
- ▶ Specialised technological expertise
- ▶ Longer unit service life
- ▶ Competitive advantages, efficiency and lower costs
- ▶ Locational advantage and knowledge transfer

e. g. — Ground-breaking Solutions for Pumps and Compressors

Your benefits

- ▶ Resistance to media, temperature and pressure
- ▶ Wide range of applications
- ▶ Customised solutions

Headquarters Europe:
Freudenberg Simrit GmbH & Co. KG
69465 Weinheim, Germany



A company of
Freudenberg Seals and
Vibration Control

Phone: +49 (0) 18 05-Simrit
Phone: +49 (0) 18 05-746748
Fax: +49 (0) 18 03-746748
info@simrit.de
www.simrit.com

