



Simmerring® MSS1+ Condition Monitoring

Safety and reliability through innovative
Seal Function Monitoring

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.

The Simrit® Innovation for Increasing Your System Productivity

Simmerring MSS+ Condition Monitoring is the modular sealing system for increasing the reliability of aggregates and machines.

A well thought out maintenance management programme can reduce maintenance costs by up to 40% and reliably protect plant and equipment against failure. Condition Monitoring is the most current strategy on the market. Simmerring MSS1+ Condition Monitoring is Simrit's innovative contribution.

The Simmerring is one of the most highly stressed machine elements. Until now, it was one of the wear elements that was undetectable in conventional machine monitoring systems. Even after 10,000 operating hours of reliable sealing, replacing it is inevitable after a certain amount of wear to ensure the seamless functioning of the machine and to avoid cost-intensive down time or failures.

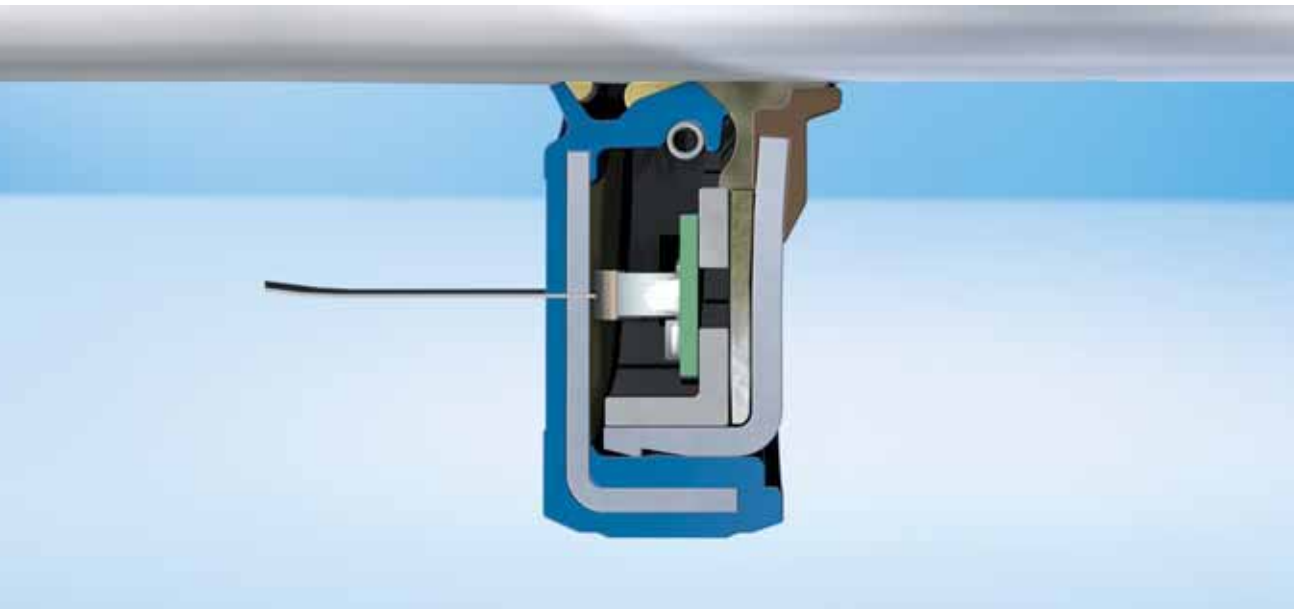


Reliable sealing function monitoring for a wide application range.

With Simmerring MSS1+ Condition Monitoring, Simrit now offers one of the most cost-effective solutions of the most modern early-detection technology to be integrated in a standardised sealing element. Within the independent seal function monitoring, the sensor detects the critical wear status of the sealing system at an early stage. Costly, preventative seal replacement is thus avoided and simplifies the matching to the maintenance cycle interval. An attractive, cost-effective solution due to its reliability and flexibility. With all the sealing advantages that only an original Simmerring offers.

- Power transmission
- Conveyor belts, assembly lines, positioning technology, clean room finishing, food-stuffs and beverage industries
- Heavy equipment construction
- Escalator/moving staircase drives
- Tunnel construction/mining
- Wind turbines
- Wastewater treatment plants
- ATEX applications
- And more

Simmerring® MSS1+ Condition Monitoring in Function



The unique functioning of a Simmerring makes the required lubrication of a component part possible while reliably preventing lubricant from leaking out.

If the sealing function diminishes during the life cycle, with Simmerring MSS1+ Condition Monitoring, the lubricant is absorbed in a leakage depot by a special non-woven material.

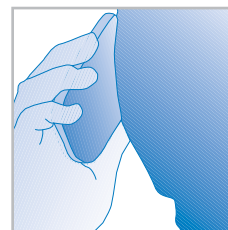
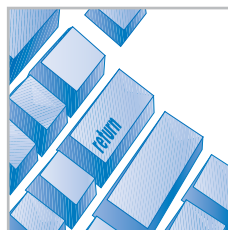
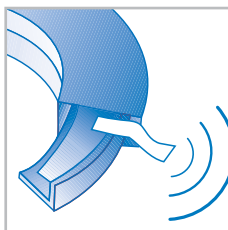
The integrated sensor detects the degree of contamination

of the non-woven material and automatically generates a warning that ensures a scheduled replacement of the seal. This function is taken over by an individually programmable electronic unit that transfers a multimedia-based signal.

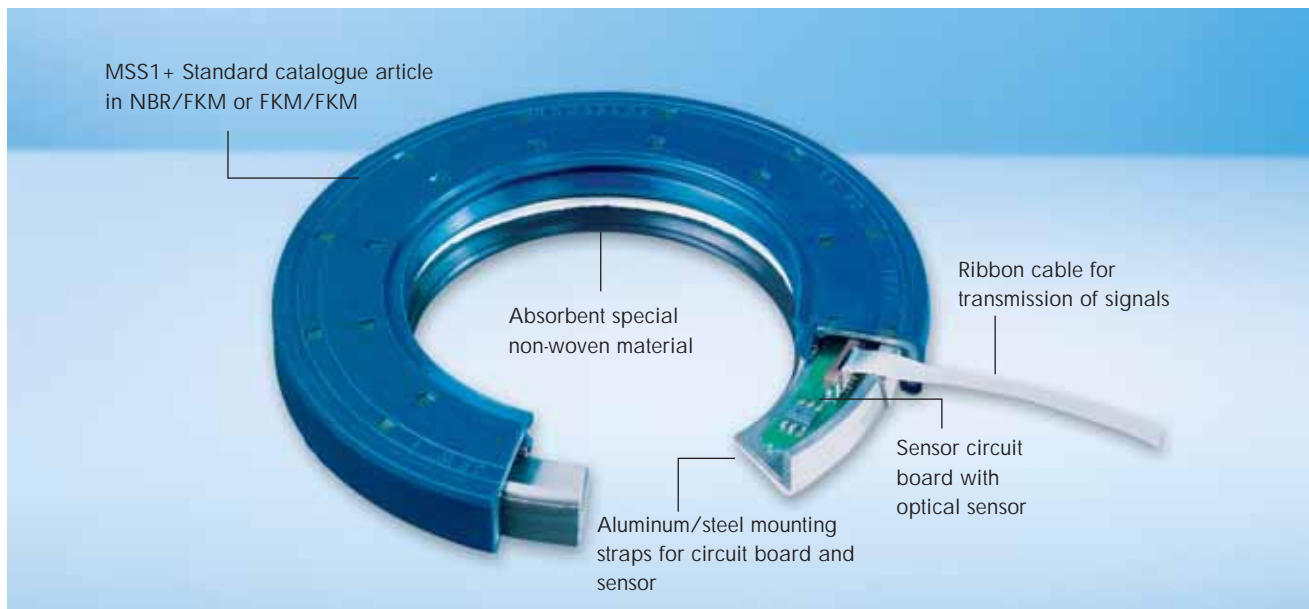
Optimal remote monitoring via existing monitoring interfaces.

Simmerring MSS1+ Condition Monitoring offers the highest efficiency within the complete monitoring process. The pro-

grammable electronic unit at the heart of the system delivers the warning signal per SMS, Internet or via telephone to the responsible party. Significant advantage of this development: The system is individually scalable to the leakage tolerances of the aggregate of the individual customer and thus avoids an undesired false alarm. And most importantly – it can be easily integrated into the existing monitoring system interfaces. The integration saves additional cost-intensive IT architecture.



Simmerring® MSS1+ Condition Monitoring – cost-effective from small series to large scale operation



More value through a flexible application range: Due to its modular construction, Simmerring MSS1+ Condition Monitoring is at home in almost every sealing standard.

Simmerring MSS1+ Condition Monitoring consists of standardised sealing and electronic components and sets new efficiency standards for sealing systems with function monitoring. Simrit offers MSS1+ Condition Monitoring in the most common seal dimensions and material designs (e.g. NBR or FKM).

In most cases, investment in new tools is not necessary and makes the solution interesting even for use in small series. In addition, the sensor electronic unit remains preserved when the seal is replaced. An additional cost-effective plus.

In conjunction with the advantages of early detection of diminishing sealing function, Simmerring MSS1+ Condition Monitoring can be the significantly cost-efficient alternative to conventional radial shaft seals.

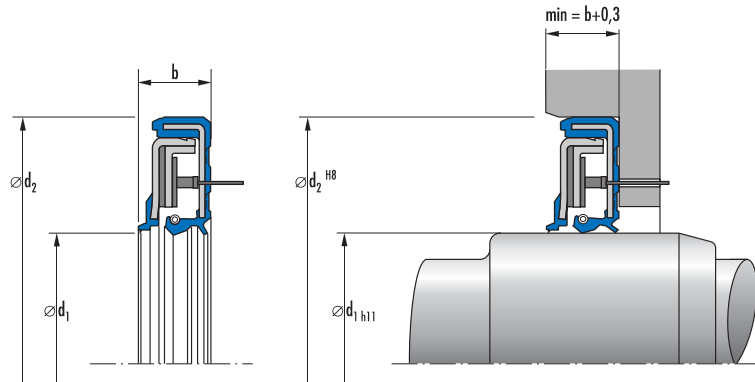
Your advantages at a glance:

- Automatic seal function monitoring
- Seal replacement can be planned in the framework of maintenance intervals without uncalculated down times of machine and system
- Protection of smaller equipment from failure due to oil loss
- Cost-effective application possibilities even for small series through modular design from standardised seal systems
- Individual scalability of the leakage tolerance for preventing malfunctions
- Can be integrated in interfaces of existing monitoring systems

Simmerring® Solutions in the Condition Monitoring Application

Real world Innovation:
The scope of application for the Conditional Monitoring Simmerring enables sealing function to be monitored in a wide variety of areas.

Simrit Innovations stand out in their practical application. A sealing concept was developed with the Simmerring MSS1+ Condition Monitoring that fulfills the installation requirements for a very wide range of applications through the integration of the electronic unit in standardised Simmerrings. This applies for the most varied dimensions, likewise for the ideal use of material. We offer Simmerring MSS1+ Condition Monitoring in the materials NBR and FKM and thus expand your individual application possibilities.



Sealing elements Standard dimensions can be integrated for Simmerring® MSS1+ Condition Monitoring

Description	d ₁	d ₂	b
MSS1	40	80	10
MSS1	45	85	10
MSS1	47	90	10
MSS1	50	80	10
MSS1	50	90	10
MSS1	52	100	10
MSS1	55	90	10
MSS1	55	100	10
MSS1	60	110	12
MSS1	62	120	12
MSS1	65	100	12
MSS1	65	120	12
MSS1	65	140	12
MSS1	70	110	12
MSS1	72	140	12
MSS1	75	130	12

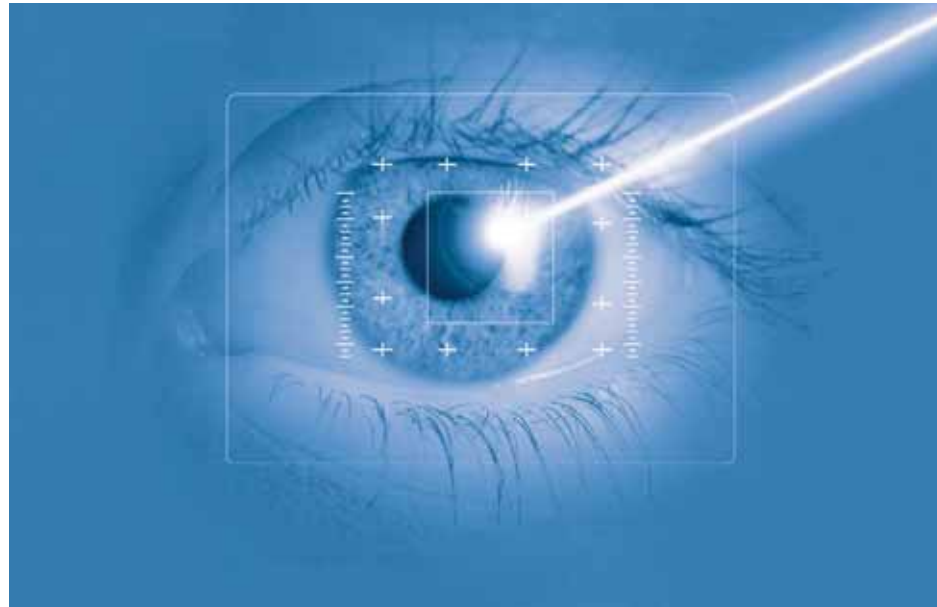
Description	d ₁	d ₂	b
MSS1	80	125	12
MSS1	80	170	13
MSS1	82	120	13
MSS1	82	160	13
MSS1	85	140	12
MSS1	95	125	13
MSS1	95	145	13
MSS1	95	170	13
MSS1	108	140	15
MSS1	108	170	15
MSS1	120	150	15
MSS1	120	180	15
MSS1	125	160	15
* MSS1	125	200	15
* MSS1	145	190	17
* MSS1	145	230	17

* Application of Condition Monitoring Function conditionally possible.
 Please contact us! Note: MSS1+ available in both materials (NBR and FKM).

Simmerring® MSS1+ Condition Monitoring – a plus for greater efficiency and operating reliability

Wherever remote diagnostics of a Simmerring's sealing function is needed, Simmerring MSS1+ Condition Monitoring brings an additional plus to safety and cost-efficiency.

Precisely in systems that can only be maintained through time-intensive or technical complexity, remote monitoring of the sealing function is an important factor for efficient operation. This is where Simmerring MSS1+ Condition Monitoring can effectively lower your maintenance costs. And even more: The sealing function monitoring reliably safeguards your system. Unscheduled system downtimes, caused by a defective seal, are avoided by the independent prognostic monitoring with Simmerring MSS1+ Condition



Monitoring. The investment for this sensor-supported sealing system is thus more cost-efficient than the investment for a conventional rotary shaft seal.

	2 Radial Shaft Seals	Simmerring MSS1+ CM
Case of operation	100 drives	100 drives
Design and Dimensions	A... 55-90 -... FKM	MSS1+ 55-90 -...
Amount	200	100
Price Euro/Piece	5.60	100.00
Development Investment/Analysis	0.00	10,000.00
Volume of purchases	1,220.00	20,000.00
Unplanned failure piece	1	0
Downtime costs	50,000.00	0
Reclamation costs	1,500.00	0
Total costs	52,620.00	20,000.00
Actual Price Euro/Piece	526.20	200.00

Escalator/Moving staircase drive – unplanned downtime

Premises: Penalty for unplanned downtime 15,000 Euro/day,

1 drive repair costs 1,500 Euro

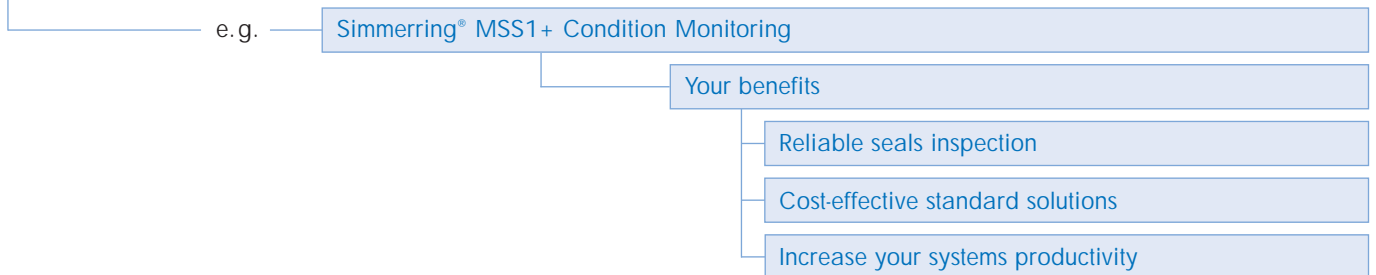
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Simrit Services

- 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



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