

New
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Aspects of Power Transmission

Simrit Product-Innovations at a Glance

Already considered a world-leading premium product in its original form, the Simmerring now offers numerous innovations in its final stages of development and additional features using state-of-the-art technology for demanding general industry uses. From the friction optimised Simmerring Energy Saving Seal to the new combinations of materials and designs, Simrit provides convincing solutions for increased efficiency and greater functionality.

Our specialists are always happy to provide comprehensive consultations on our latest innovations.



Simmerring® PTS Poly Tech Seal

With its modular PTFE/elastomer/steel sealing arrangement, the Simmerring PTS combines all the advantages of a PTFE seal without having to forgo optimum sealing performance for alternating directions of shaft rotation or static conditions.

The challenge

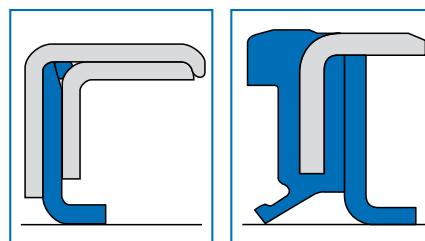
High power densities under temperature, pressure and speed as well as the use of new synthetic lubricants in transmissions and engines require Simmerring solutions that go beyond the possibilities of an elastomer seal and compensate for the problematic PTFE characteristics of static seals or alternating direction of rotation.

Our solution

- The Simmerring PTS consists of a sealing lip made of PTFE, which can be individually designed with or without single direction of rotation/bi-directional helix in conjunction with elastomer compounds that are specifically adapted to the application and a steel carrier housing
- By bonding the PTFE sealing lip to the elastomer and the partially rubberised steel carrier housing the Simmerring PTS offers reliable protection against leakage for static applications as well. Compared to a traditional seal, the leakage rate for this seal has been improved 14-fold

Advantages at a glance

- > Up to 50% reduction in friction or power loss compared to customary PTFE seals
- > Very economical sealing system adaptable to your individual application, thanks to the modular configuration
- > All sealing designs for single, alternating rotation or without rotation
- > Low maintenance costs
- > Increase in service life and reduction in warranty claims
- > Broad application spectrum



Difference: a factor of 14!

Conventional seal

Average leak rate per seal
0.013 ml/h

Simmerring PTS

Average leak rate per seal
0.0009 ml/h

Simmerring® ESS

Everywhere where energy losses represent persistent cost factors the Simmerring® ESS is in its element. Especially during times of increasing energy costs it's an advantage that will pay off.

The challenge

- To provide a clear reduction in friction for energy savings and reduction in power losses in industrial power transmission, for electric power tools (in particular battery-operated tools) and for motors
- To enable use with critical lubricants and shaft vibrations and all other applications that must be subjected to as little friction as possible

Our solution

- In contrast to traditional rotary shaft seals, the Simmerring® ESS does not



require spring loading on the sealing lip

- The enormously reliable sealing function is a result of the specific contact force of the sealing edge in conjunction with the characteristics of the elastomers adjusted to the application
- The return helix also optimises the sealing efficiency making the spring for placing pressure on the sealing lip redundant. Omitting the spring reduces the initial load and thereby significantly reduces friction

Advantages at a glance

- > Simmerring® ESS reduces power losses and saves energy
- > Reliability and wear-resistance of the seal are clearly increased thanks to the reduction in friction
- > The special design compensates for pressure application by up to 0.3 bar
- > Simmerring® ESS is also effective for static applications under pressure and high oil level due to its excellent sealing function
- > Despite backflow turbulence the Simmerring® ESS also compensates for brief shifts in direction of rotation with no problems

Simmerring® CTI Central Tyre Inflation

Central tyre inflation systems, for agricultural or construction machinery, for example, optimise the traction of the vehicle with pressure adapted to the respective terrain. The Simmerring® CTI maintains a tight seal for a longer period of time.

The challenge

- Increase the service life of the sealing system under extremely high pressure
- Reliable sealing in particular when levelling the tyre pressure while travelling against air up to 8 bar and against oil and grease

Our solution

- In contrast to traditional seals made of PTFE, which do not reliably seal against oil and grease, Simrit has developed a 2-component solution with 2 sealing lips
- The primary sealing lip system consists of highly wear-resistant PTFE and seals against air with a simultaneous throttling function. The secondary sealing lip in the system is therefore never exposed to the complete pressure and seals off completely normally occurring air leakages
- A pressure-stabilised oil sealing lip made of FKM takes care of lubricant sealing



Advantages at a glance

- > Simmerring® CTI offers a distinctly longer service life and holistic sealing function compared to traditional seals for tyre inflation
- > High reliability when pressure is applied over long periods up to 8 bar and simultaneously rotating hub
- > Outstanding sealing function for oil and grease as well

Simmerring® with a PTFE Dust Lip

With its novel PTFE impregnation, Simrit offers innovative non-woven textile technology for the Simmerring® for protection against contamination.

The challenge

- Functional security of the Simmerring is critical for the smooth operation of the system, especially for applications subjected to high levels of contamination such as mud, saltwater or sand
- Quick adaptability to the application and an orientation towards a cost-effective use of this premium product even when only small quantities are needed

Our solution

- The impregnation of a newly developed non-woven textile with PTFE optimises

the sealing lip and dust lip of the Simmerring for sustained periods

- The PTFE impregnated non-woven textile results in an optimum seal for retention of lubricants as well as against particles and external materials that can cause functional damage
- The textile is produced in sheets and punched out as textile disks, which are applied quickly and cost-effectively via adhesion to the Simmerring

Advantages at a glance

- > High protective functionality against external factors that can cause functional damage and a distinct reduction in friction with the innovative PTFE impregnation
- > Very good sealing behaviour
- > Very good cost-efficiency even for small quantities, thanks to the innovative fabrication process
- > Bespoke to your application



„Shinkansen“ NOK rotary shaft seal

High speeds place high demands on rotary shaft seals. Our Japanese technology partner, NOK, developed the right sealing concept especially for the high-speed „Shinkansen“ train.

The challenge

- To provide reliable sealing at high speeds of 270 km/h during commercial service
- Shaft circumferential speeds of around 15 m/s
- High rotational speeds both during forward rotation and backwards rotation of the shaft

- To ensure an especially long service life

Our solution

- An impressive new NOK rotary shaft seal, with design features that are precisely tailored to the requirements of the operation of the „Shinkansen“
- The main sealing lip is covered in order to decrease oil pressure at high shaft circumferential speeds
- A low friction design and special cover for high pressure were integrated to tailor the solution to the clients' requirements

Advantages at a glance

- > The NOK rotary shaft seal is impressive, offering outstanding sealing function at shaft circumferential speeds up to around 15 m/s
- > Very good performance at high rotational speeds both in forward and backward rotation
- > High durability and service life due to friction-reduced design



Simmerring® Combi Seal SF 19

A seal must withstand strong axial movements, especially in gearbox applications with cardan shafts. With the Simmerring Combi Seal SF 19 this is no problem.

The challenge

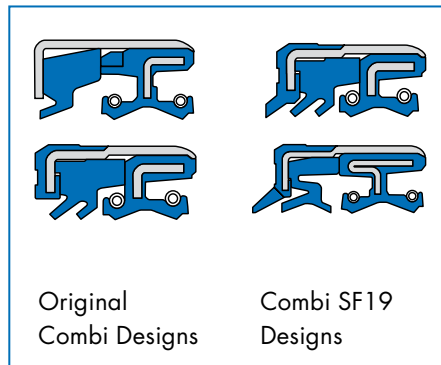
- Adaptability of the seal to strong shaft deflections
- Protective function against contamination of the shaft

Our Solution

- On the inside, the Simmerring Combi Seal SF 19 has a flexible polyurethane

wiper, which adapts to the movement of the shaft and has two extra rubber lips for absorbing shaft deflections of up to 15 mm

- An additional external rubber wiper at the seal performs the initial pre-cleaning of the shaft



Advantages at a glance

- > The Simmerring Combi Seal SF 19 permits distinctly higher shaft deflections than traditional sealing solutions
- > Its additional protective function against dirt in sliding and rotating shafts increases the service life of the Simmerring Combi Seal SF 19 by 45% in comparison with conventional premium seals
- > The failure rates of the system caused by contamination are reduced while simultaneously optimising performance

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