Merkel Seals and Sealing Systems
for the Metal Processing Industry
Simrit®, Your Global Technology Specialist for Seals and Vibration Control

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

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 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.

Simrit offers a complete package of products and services, including leading brands such as Simmerring®, Merkel, Integral Accumulator, Lederer and ISC O-Ring.
Our sealing competency reliably safeguards your processes in the steel construction industry

Control forces: As the leading technology specialist for seals and vibration control, Simrit offers an outstanding performance programme for sealing all fluid-related application forms in the steel construction industry.

The Simrit performance pledge, focused on your specific market needs, establishes the highest operational safety and functionality for the sealing of heavy equipment construction systems used in the steel construction industry. Through our well established application experience, in conjunction with a materials competency unique to the market, we are in the position to be able to deliver solutions to you that are precisely matched to your requirements. Reliability and efficiency are important factors that you can count on with every sealing solution from Simrit. Likewise, you can also count on the high availability and rapid delivery of our products. The Merkel product programme gives you the complete standard offerings of seals and sealing systems. We quickly and competently bring ready-for-use customer-specific solutions to you.
Seals and Sealing Systems
for the Metal Processing Industry

Sealing System Approach
Our experienced team of material scientists and design engineers have developed a complete range of high performance sealing elements using Finite Element Analysis and other modern design tools. Our product range includes wipers, rod and piston seals, Simmerrings, swivel joint seals, guide and wear bands, packings for pumps and valves and more. Our seals are offered in an uniquely wide range of highly engineered materials including premium polyurethanes, PTFE compounds, NBR, fluoror- elastomers, and many others.

Worldclass Service
At Simrit we offer more than just superior performing seals, we also offer unparalleled service. It starts with our staff of experienced engineers who are readily available to provide technical support. Our service also includes stocking of many standard products as well as an extensive network of sales and distribution resources to ensure our products are there when they are needed. We have also developed hi-tech manufacturing capabilities whereby parts can be injection molded or, if needed, quickly or in small quantities, machined from the same high performance materials. In addition, our machined seals are excellent for prototypes and for retrofitting existing or remachined housings. Simrit understands your service requirements.

For a diverse number of metal processing applications Simrit offers high performance sealing systems, such as:

- Automatic gauge control cylinders
- Caster segment cylinders
- Work-roll bending cylinders
- Back-up roll balancing cylinders
- Roll-neck bearings
- Strand guide cylinders
- Hydraulic quick change cylinders
- Coiler and looping cylinders
- Straightening withdrawal unit segment cylinders
- General hydraulic and pneumatic cylinders
- Pumps, valves, etc.
**Typical Sealing Arrangement for Hydraulic Automatic Gauge Control (HAGC) Cylinders**

**Hydraulic Roll Load Cylinder for Hot Strip Mill — Double-Acting Cylinder**
Merkel sealing system consists of Omegat OMS-S rod seal, wiper PT 2, Omegat OMK-S piston seal and Guivex guide rings.

- Very low friction, no stick-slip
- Superior sealing performance and long service life even under high loads
- Can handle large gaps and extremely dirty environments
- Developed for short strokes at high frequencies

**Hydraulic Roll Load Cylinder for Cold Strip Mill — Double-Acting Cylinder**
Merkel sealing system consists of Omegat OMS-MR rod seal, wiper PT 2, Omegat OMK-MR piston seal and Guivex guide rings.

- Very low friction, no stick-slip
- Outstanding sealing performance and service life
- Developed for short strokes at high frequencies
- Prevents contaminants from entering into the system even in the dirtiest environments

**Hydraulic Roll Load Cylinder, Single-Acting — Standard Design for Retrofitting Existing Cylinders**
Merkel sealing system consists of an Omegat OMK-ES piston seal and a special shaft seal as a wiper.

- Optimised retrofit design for improving performance of existing equipment
Typical Sealing Arrangement for Bending and Balance Cylinders

**New Design**

**Work-Roll Bending Cylinder**

Merkel sealing system consists of Omegat OMS-MR rod seal, wiper PT 2, Omegat OMK-MR piston seal and Guivex guide rings.

- very low friction, no stick-slip
- outstanding sealing performance and service life
- developed for short strokes at high frequencies
- prevents contaminants from entering into the system even in the dirtiest environments

**Standard Design**

**Work-Roll Bending Cylinder**

Merkel sealing system consists of Omegat OMS-MR rod seal, wiper PT 2, Omegat OMK-MR piston seal and guide elements.

- excellent sealing performance
- very low friction, no stick-slip
- long service life

**Back-up Roll Balancing Cylinder**

Merkel sealing system consists of Omegat OMS-S rod seal, wiper PT 2 and guide elements.

- designed to withstand high side load and large gaps
- very low friction, no stick-slip
Typical Sealing Arrangement for Continuous Caster

**New Design for Segment Cylinders**
Merkel sealing system consists of Omegat OMK-S piston seal, Omegat OMS-S rod seal, Double-acting wiper PT 1 and guide elements.

- extremely low friction, no stick-slip performance
- PT 1 provides excellent wiping and secondary sealing
- excellent pump-back capability
- suitable for high radiant heat environments

**Standard Design**
Merkel sealing system consists of Type ESV V-packing on the rod, wiper P 6 in FKM and Type EKV V-packing for the piston.

- proven design
- rugged construction for long service life
- made from FKM to withstand high temperatures
Typical Sealing Arrangement
for Roller Bearings – Work-Rolls and Back-up Rolls

Very low friction, long service life and resistance to aggressive media.

New Design System
Radiamatic RHS 51
Sealing system consists of Simmerring Radiamatic RHS 51
High Speed Seal and a Merkel Water Guard 8074 (or Seal WA-A, WA-AX)*.

* Which kind of the Water Guard is dependent of the application

- Effective sealing even up to 3mm of shaft deflection
- Can operate at high speeds, up to 35 m/s, 40 m/s intermittent
- New spring system exerts evenly distributed radial force
- Self-retaining through integrated steel band ensures tight fit on the OD
**System Radiamatic R 58**
Sealing system consists of Simmerring Radiamatic R 58 and a Merkel Water Guard 8074 (or Seal WA-A, WA-AX)*.

- specifically designed for grease lubricated bearings
- seal lip engineered to provide higher radial sealing force
- capable of operating at speeds up to 15 m/s

**System Radiamatic R 35**
Sealing system consists of Simmerring Radiamatic R 35 and a Merkel Water Guard 8074 (or Seal WA-A, WA-AX)*.

- capable of operating at speeds up to 20 m/s
- designed for oil lubricated bearings

**System Radiamatic R 37**
Sealing system consists of Simmerring Radiamatic R 37 and a Merkel Water Guard 8074 (or Seal WA-A, WA-AX)*.

- capable of operating at speeds up to 20 m/s
- space saving design utilises integrated lubrication grooves

* Which kind of the Water Guard is dependent of the application
Seals for Metal Processing Industry

**Rod Seals**
- Merkel Omegat OMS-MR
  - Low friction, no stick-slip
  - Compact design
  - Good pump-back capability
- Merkel Omegat OMS-S
  - Excellent sealing performance
  - Low friction, no stick-slip
  - High extrusion resistance
  - Good wear characteristics
- Merkel ES V-packing
  - Robust and long service life
  - Proven design

**Piston Seals**
- Merkel Omegat OMK-MR
  - Bi-directional sealing
  - Effective with fast pressure changes
  - Low friction, no stick-slip
- Merkel Omegat OMK-S
  - Excellent sealing performance
  - Low friction, no stick-slip
  - Superior extrusion resistance
  - Good wear characteristics
- Merkel Omegat OMK-ES
  - Single-acting seal
  - Good extrusion resistance
- Merkel EK V-packing
  - For severe applications
  - Ideal for fast pressure changes

**Simmerring**
- Radiamatic R 35, R 37
  - High wear resistance, long life
  - Long lasting radial sealing force
  - Excellent sealing performance
- Radiamatic R 58
  - For grease lubricated bearings
  - Seal lip engineered to provide higher radial force
- Radiamatic RHS 51
  - Seals effectively with high deflection
  - Self retaining
  - Easy press-fit installation
  - Capable of high speeds up to 35 m/s
  - Constant low radial forces

**Waterguard**
- Merkel Water Guard WA (Type A and AX)
  - Low friction
  - Elastic and flexible
  - Easy installation
- Merkel Water Guard Type 8074
  - For universal use
  - High wear resistant
  - Easy installation
Wipers

Merkel Double-Acting Wiper PT 1
- Excellent wiping and sealing performance, provides secondary sealing
- Good pump-back capability

Merkel Double-Acting Wiper PT 2
- Superior wiping performance
- Prevents dirt ingression around outside of wiper
- Also available with pressure relief

Merkel Wiper P 6
- Proven design in FKM
- Wide temperature range

Guide Elements

Merkel Guide Bands SB/KB
- High load carrying capability
- Long service life
- No siezing

Merkel Guide Bands SF/KF
- Long service life
- Excellent resistance to media
- Low friction performance

New Design:
Merkel Guivex Guide Rings SBK/KBK
- Optimised load distribution
- Compact design
- Reduces edge loading
- Patented
Simrit®, Your Global Technology Specialist
for Seals and Vibration Control

**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

*Merke  Seals and Sealing Systems*

Your benefits
- Outstanding sealing performance
- Excellent resistance to media
- Long service life

Headquarters Europe:
Freudenberg Simrit GmbH & Co. KG
69465 Weinheim, Germany
Phone +49 (0) 1805-Simrit
Fax +49 (0) 1805-746748
info@simrit.de
www.simrit.com