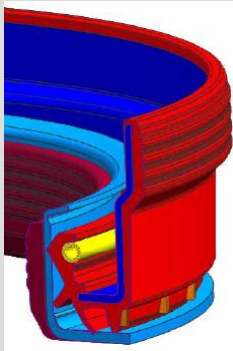
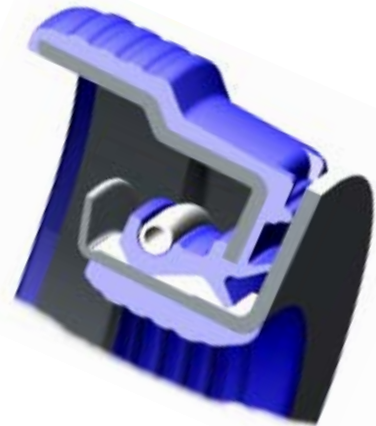


# MILEMAKER

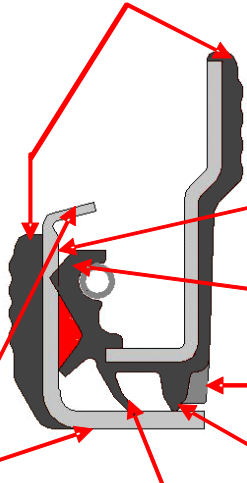
## Heavy Duty Wheel Seals

MileMaker™ HD wheel seals are designed to address issues facing the Heavy Duty industry such as higher wheel end temperatures, greater fuel efficiency, longer service life, and increased durability. Key design elements of the seal focus on ease of installation and maintenance, compatibility with mineral and synthetic oils and greases, patented design feature for improved resistance to contaminants, and superior heat resistance.



1. Advanced seal material to withstand higher operating temperatures (up to 350°F). Seal material is compatible with mineral and synthetic oils, and grease lubricants.
2. Integrated lathed, ground, and polished wear sleeve running surface to reduce friction, lower torque, and promote cooler running surface for main seal lip.
3. OD "Fin Feature" and additional contaminant exclusion lip provide better protection against contaminants thereby increasing seal performance and life.
4. Lubed rubber OD and ID design to ease installation force and seal any minor hub or spindle imperfections. Less installation force results in less heat generation and hence increased life.
5. Seal design has low internal torque aided by internal lubricant which translates to lower internal heat generation, excellent wear resistance, and improved fuel economy.

Rubber ID and OD for ease of installation



Lathed, ground and polished sealing lip running surface to reduce friction, lower torque and promote cooler running surface

Advanced lip material to withstand higher temperatures

Patent pending Fin Feature to deflect contaminants

Revised bumper design to ease installation load

Bare metal surface for better heat dissipation Additional lip for contaminant exclusion

### Material Expertise & Service

Freudenberg-NOK mixes rubber compounds in-house and tests at the time of production for quality. We offer an assortment of rubber colors allowing for easy part differentiation. Our molding and assembly processes include 100% visual inspection at the source. At the time of new launch, products are matched with the production process that best meets goals for cost and performance. When new products are launched, prototype and production parts are manufactured using the same process ensuring a smooth launch from prototype to mass production.

Freudenberg-NOK is globally located to support you. We are ready to work with your team to understand your specific application requirements in order to offer a solution that optimizes valve durability, oil consumption, and emissions.

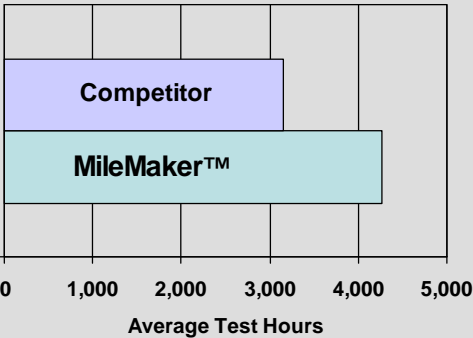


## Heavy Duty Wheel Seals

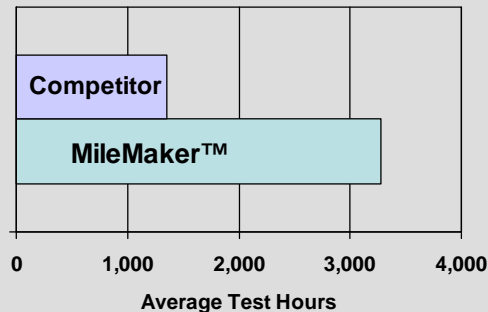
Internal Validation:

100 various tests performed for a total of more than 150,000 working hours

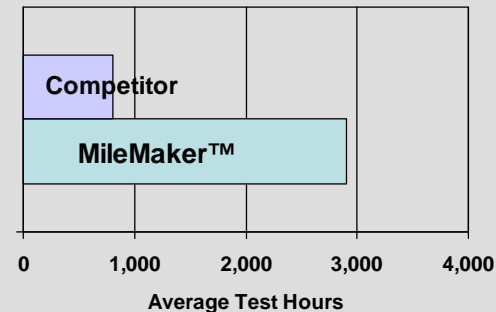
Mean Life on Hot Durability Test



Mean Life on Hot Temperature Test



Mean Life on Contaminant Exclusion Test



1. All tests were performed based on stringent truck industry specifications.
2. **MileMaker™** seal displayed similar or superior performance as compared to competition in every test.
3. Over 8 million miles of fleet testing across North America with zero failures.

### Benefits

- **Long service life potential**, operating in excess of 500,000+ miles.
- **Extremely low torque drag**, reduces drag over 40% better than the competition average, even at surface speeds up to 30 m/s.
  - Very low heat generation thus reducing risk of oil oxidization and wear
  - Reduced carbon footprint
  - Reduced energy consumption
- **Oil retention is enhanced** by pumping action of main lip helixes.
- **Proprietary FKM main lip compound** has very good compatibility with lubricating oils and greases.
- **Accommodates end play**, high shaft eccentricities, and vibration.
- **Integrated wear sleeve** effectively lowers the complete system cost.
  - No expensive shaft finish, hardening or special surface treatment is required
  - No risk of sealing lip damage during handling and assembly

### World-Class Manufacturing

- **Zero Defect Philosophy** – Our global commitment to Six Sigma quality levels is evident in every step of every process and guarantees each part, no matter where it is produced.
- **Production Know How** – The Freudenberg-NOK organization draws from more than 150 years experience in producing seals.
- **Global Production Flexibility** – With facilities world-wide we are capable of supporting production programs globally.
- **Testing** – State of the art test and measurement equipment for design validation and development.
- **System Responsible** – Our entire approach to effective sealing is based on the knowledge that consistency is the key to reliability. The complete value of our systems approach is a function of leveraging Freudenberg-NOK's quality and dependability in every component.