Dual Compound Fork Seal for Motorcycles.
10 years of technology evolved.

Headline

Dual Compound Fork Seal kit brings next level performance to the front fork suspension system.

Introduction

The new fork seal kits feature Dual Compound Technology (fig. 1), Seals and wipers are vital protective components of the front suspension and greatly impact riding performance and trouble-free operation in the harshest environments.

Preface

Riding conditions, especially off road, are so varied and influenced by unpredictable environments that suspension and component (seals) manufacturers are traditionally forced to adopt a compromised approach while designing assemblies. This compromise often leads to decreased performance in the quest for durable operation.

The solution

SKF is making its contribution to improve reliability without sacrificing performance and riding feel with Dual Compound Fork Seal kits (fig. 1), which represent a great leap in design and manufacturing technology. The new seals are in addition to SKF's well established line of fork seal kits (fig. 2) that include Single lip and Heavy Duty double lip wipers.

Fig. 1: The new Dual Compound Fork Seal package

Single lip **HD double lip**

Fig. 2 : SKF's existing line of fork seal kits

Innovation based on industry knowledge

SKF has been on the cutting edge of high-end motorcycle and MTB suspension seal technology for over a decade delivering premium sealing solutions to both OEM and aftermarket clients. We have gained knowledge of new seal designs through a deep understanding of the application constraints and requirements, replicated real-life testing in the laboratory in correlation of field test data and feedback. We design our products with the latest in-house developed computer-simulation seal tools to optimize contact forces to reduce friction and maximize contamination protection characteristics.

Engineering Evolved

The new seal design (fig. 3) was influenced by several practical requirements dictated by the application knowledge gained over years of experience.

- Improve contamination exclusion
- Optimized friction and stick-slip

This translates into improved external contamination exclusion and equally low friction and stick-slip as the existing SKF seal kits.

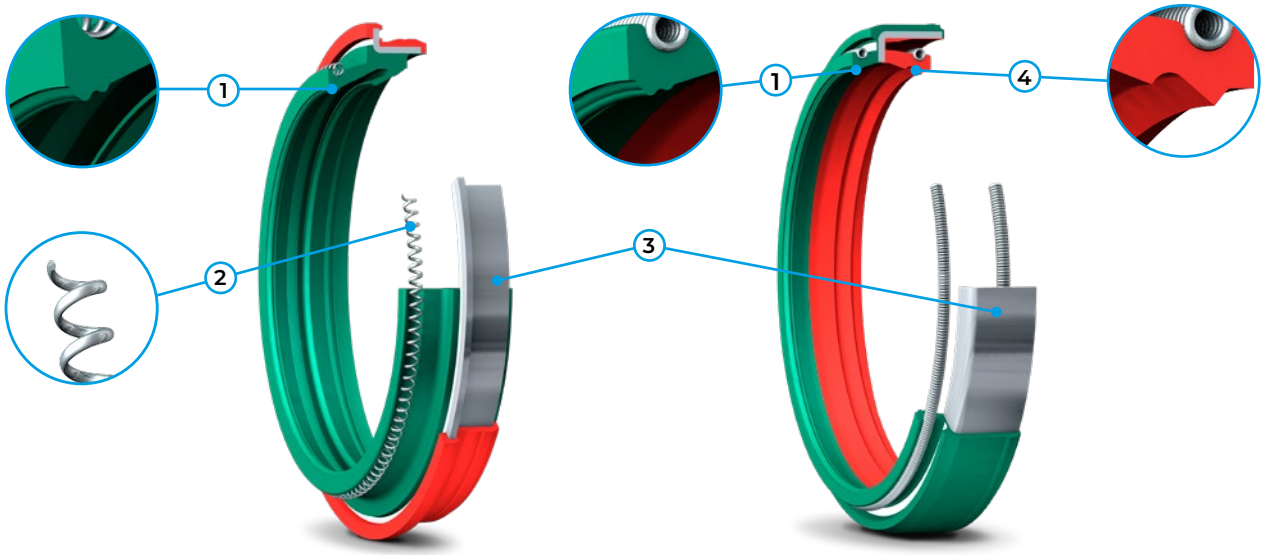

Fig. 3 : The new Dual Compound Fork Seal design and main features

SKF has produced a revolutionary new fork seal kit design with two newly formulated proprietary NBR compounds optimized for specific sealing functions. The co-molded manufacturing technology allows utilization of these compounds and features completely re-designed lips on the dirt scraper and the oil seal to enhance followability on the shaft and better exclusion for greatly improved protection against external contaminants ① The new open wound garter spring ② allows mud to flow through the spiral for a stable radial load on the lip to optimize contact pattern to the shaft. The new metal stamping for both dirt scraper and oil seal provide proper support to the sealing lips for optimal functionality ③. The proprietary “super low friction” NBR compound is enhanced by the specifically designed lip ④ of the oil seal and has been developed to further reduce the friction and stick-slip under all operating conditions.

Testing

The Dual Compound Fork Seal significantly outperforms the competition and provides further protection improvement versus SKF’s own current product offering. It has better protection against external contamination than other seals. (fig. 4) Friction and stick-slip remain the benchmark of the fork application (fig. 5).

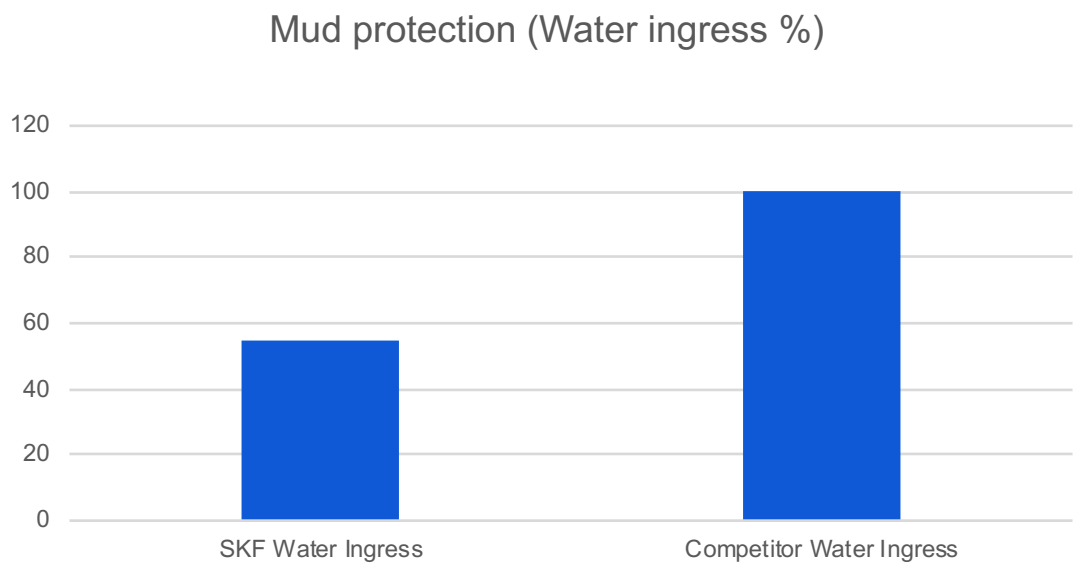

Fig. 4 : Seal mud test comparison – Dual Compound Fork Seal versus competitors.

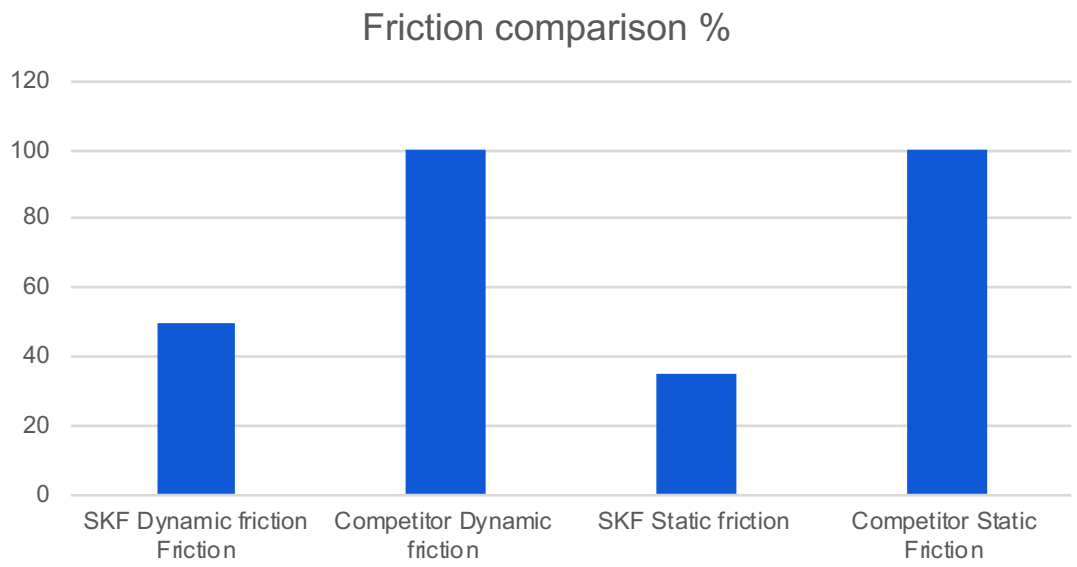

Fig. 5: Friction torque test results – comparison of Dual Compound Fork Seal kit with competitors.

Summary

Thanks to the commitment of the SKF team, the Dual Compound fork seal kit is ground-breaking technology for design and manufacturing of seals that will significantly improve protection of the internal fork mechanism while maintaining low friction and stick-slip properties for an enjoyable riding experience and reliable operation.