The total off-highway solution

Design, testing and product advances from SKF

Equip your vehicle with SKF knowledge

An integrated systems approach

As every design engineer understands, all the components of a machine are interrelated. Loads and stresses placed on a housing, frame, shaft or other mechanism have an impact on the performance of the bearings, seals, and lubricants, and vice versa. So it makes sense to look at the design from a systems point of view, factoring in how components and systems interact with each other over a wide range of operating conditions. The challenge is finding a design partner with expertise in not just one, but all the areas critical to machine performance and service life.

Whether your application is linear or rotary or a combination of the two, SKF® can help.

A single source of responsibility

With competency in bearings, seals, lubrication systems, linear motion, sensors and condition monitoring, SKF can provide a total systems approach to optimize your application – but more importantly, we can be your single source of responsibility for the success of your design.

As your partner in off-highway vehicle systems design, SKF can help you:

- Make designs lighter and more compact
- Enable equipment to operate faster, quieter, and smoother
- Improve product reliability and decrease warranty claims
- Reduce energy consumption and lubricant use
- Reduce, simplify maintenance
- Minimize environmental impact
- Streamline the design cycle and speed time-to-market
- Improve the manufacturing and assembly process

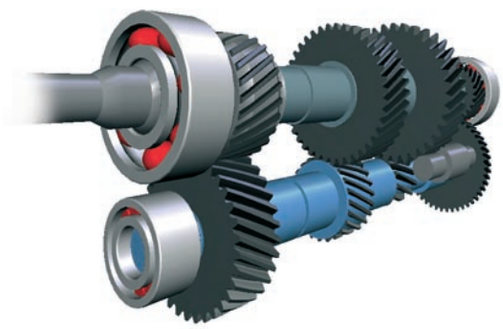
Design it...

with SKF design optimization services

Engineering services

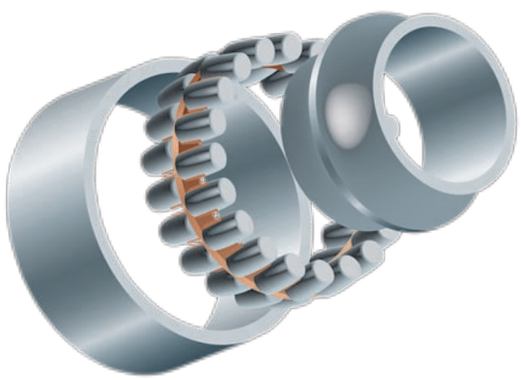
OEMs can take advantage of a wide range of SKF engineering services to optimize new and existing designs through advanced dynamic modeling, vibration analysis, lubrication analysis, metallurgical studies, and bearing failure analysis.

As experts in the fields of metallurgy, tribology, sealing, lubrication and coatings, SKF engineers can often recommend alternatives to solve application challenges that can improve performance, reduce energy and lubricant use, extend maintenance intervals and reduce warranty claims.



Dynamic systems modeling

In the past, new bearing and seal systems were optimized using an expensive and time-consuming trial and error process. Today, SKF's ORPHEUS simulation software lets designers study the dynamic behaviour of bearing and seal systems within their application quickly and easily. This robust software program, which provides a graphic shell for 3D visualization and animation, can be used to significantly increase power density, reduce assembly time and reduce noise, vibration & harshness (NVH).



Test it...

with SKF verification services

SKF customers have access to sophisticated tools, laboratory and test facilities to help verify that system designs will meet performance expectations.

Virtual test rig

ORPHEUS, the SKF virtual test rig, enables you to identify potential weaknesses and explore various solutions – prior to building a prototype and testing in the field. The program creates virtual prototypes within hours instead of months, improving machine design and speeding time to market.

Testing and laboratory services

At SKF testing laboratories, prototypes can be subjected to actual application conditions, on accelerated timetables. Laboratory services include metallurgical testing, lubrication and seal testing, chemistry analysis, failure analysis, and performance evaluation. SKF engineers can design and run appropriate tests, make recommendations for improved performance, and verify improvements through further testing.

Build it...

with SKF performance products

SKF offers a wide range of rotary and linear products for off-highway vehicles. These range from highly-efficient roller screw jack actuators that can lift loads ranging from one-half to 90 tonnes, to specialized bearings, seals and units that can accommodate extremely high or low speeds, extreme loads, contaminants and misalignment. SKF can also provide custom "plug and play" solutions that reduce assembly, warranty costs and maintenance.

Bearings and integrated units

No one offers a broader range of plain and roller bearing solutions than SKF. From sealed-for-life units that require no maintenance, to unique application-specific sensorized bearings, SKF designs are focused on functionality. SKF leads the industry in the innovation of new bearing designs, materials and coatings – even patenting the process for applying coatings to bearing surfaces.

Mechatronics: sensorized solutions

By integrating mechanical, electronic, and information technologies, SKF engineers are helping customers design a new generation of smart products through mechatronics. Employing sensor-equipped bearings or sensorized linear systems, mechatronic systems can measure speed, temperature, load, vibration, and position. At the same time, they can be used to integrate Global Positioning Systems (GPS) into drive-by-wire systems. They can also simplify designs, reduce weight and maintenance and minimize environmental impact.

Sealing solutions

SKF is a leader in the field of elastomerics, and a global supplier of sealing solutions for rotating, reciprocating, and static applications. In addition to a wide range of standard industrial oil and grease seals, SKF also manufactures engine, heavy-duty and hydraulic seals.

With SKF sealing solutions, OEMs can reduce weight and noise and simplify installation.

Lubrication systems

SKF experts can work closely with you to select the optimum grease or oil for a specific application, without bias toward a particular brand or lubricant type. When needed, engineers from Vogel, the leading designer and manufacturer of lubrication systems, can be brought in to help you design a lubrication system that can optimize efficiency, reduce maintenance, and enhance reliability.

By combining bearing, seal and lubrication expertise to create customized solutions, SKF engineers are able to provide fully unitized assemblies that can improve performance, simplify assembly, and reduce maintenance.

Protect it...

SKF helps protect the environment

Diminishing energy supplies. Emissions regulations. Endangered water and air supplies. Overflowing and potentially hazardous landfills. Global warming. For today's design engineers, the impact of a product's use on the environment is becoming a major focus. SKF can help.

Sustainability: Meeting the challenges of today... and tomorrow.

In designing sustainable products and systems, attention must be given to the product's energy-efficiency, as well as to its total life cycle – including packaging and eventual disposal.

SKF can help you meet these challenges through a number of product and design innovations. Many of these are used in our own manufacturing plants worldwide, where we are committed to achieving zero defects, zero accidents, zero waste and zero emissions. Here are just a few these "green" solutions:

- Lubricant-free plain bearings
- Ultra-low friction, high capacity SKF Explorer bearings that enable downsizing and energy-efficiency
- Mechatronic solutions that eliminate hydraulics
- Engineered units that reduce the number and weight of components
- Condition monitoring devices that enable end users to move to condition-based service intervals as opposed to time-based service intervals
- Sealed-for-life bearing units that require no additional lubrication
- Environmentally-friendly lubricants and lubrication systems
- Lubrication distribution systems that optimize and minimize the use of lubricants

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