

# Rotating equipment performance

Are you getting the best performance from your equipment?

A large industrial rotating machine, possibly a ball mill or a large motor, is the central focus of the image. It is a massive, cylindrical structure with a complex, multi-layered design. The machine is painted in a bright yellow color, which stands out against the dark, industrial background of the factory. The machine is surrounded by a network of metal walkways, railings, and stairs, indicating a complex and multi-level structure. In the foreground, two workers wearing high-visibility safety gear (one in yellow and one in orange) are standing on a walkway, looking at a piece of equipment or a control panel. The background shows the intricate steel framework of the factory, with various pipes, beams, and structural elements. The lighting is industrial, with bright spots from overhead lights illuminating the scene. The overall atmosphere is one of a busy, large-scale industrial environment.

# An introduction to rotating equipment performance



The industrial world is changing. And as new challenges emerge, plant managers, engineering manager, maintenance and service engineers are all looking for ways to maximise machine performance, while lowering operational and maintenance costs. SKF offers you solutions to drive business success by getting the most from your machinery.

Getting the right performance from rotating equipment can help meet business objectives and give you a competitive edge. But the right performance is different for every customer. This is why we have engineered a broad range of products, technologies and services combined with flexible new business models, to meet your unique requirements.

Digitalization and technology developments are fast becoming key industrial strategic drivers. The Internet of Things (IoT) is connecting machines, while Big Data is offering new insights into machine performance and opportunities to drive efficiencies. SKF is leading the way with digitally enabled solutions built on years of machine and application knowledge.

So, whether you want to solve a specific rotating equipment problem, increase your plant and equipment performance, or improve your overall maintenance strategy and efficiency, SKF is your partner. With access to unique application insights and the right products, technologies and solutions, we can help you achieve the performance you are looking for from your rotating equipment.

# What does rotating equipment performance mean to you ?

Performance demands are different for every business. But, with rotating equipment the ultimate objective is to maximise the reliability and output from your machinery and your production process, whilst driving down the total cost of ownership over the life cycle. With experience from almost every industrial sector and machine type, SKF can work closely with you throughout a machine's complete life cycle, using our knowledge, experience and insight to provide improved equipment design specifications, as well as the high quality products, services, and advice required to help you meet your business objectives.



## Improve output

By optimizing the performance of your rotating equipment you can increase availability, performance rate and quality – all driving greater Overall Equipment Effectiveness, and boosting output for your business.



## Trim your Total Cost of Ownership

Poor performance and unplanned downtime don't just affect your productivity and cost of production, they can also directly affect the cost of energy, maintenance, spare parts, labour and more – all adding up to a greater Total Cost of Ownership (TCO). SKF can help you achieve more reliable rotation, so you can reduce your TCO.



**\$26M**  
DOWNTIME  
COSTS  
AVOIDED



## Assess

Show how your operations perform compared to others in your industry, identify key areas for immediate improvement and maximum savings, and set your longer term goals and strategy. Our consultants use SKF benchmarking tools for asset and lubrication management to help you review aspects critical to your operations, analyse the results, and then compare them to reference values and best practice in your sector. The resulting report and recommendations will help you to deliver real value to your operations.

## Detect

Detecting machine problems using the right condition monitoring technologies and services can prevent costly unplanned downtime and loss of production. It can also allow the efficient planning of spare parts availability and machinery maintenance activities. Early detection of a defect in a critical cement mill application avoided loss of production costs running at \$1M per day, on parts with a 26 week lead time !

## Maintain

General maintenance activities are part of daily life in your plant, and doing them correctly can save you time and money. In addition to providing a wide range of maintenance products, SKF also offers support via mechanical services such as alignment, balancing and bearing installation, as well as professional engineering project skills to help you solve your rotating equipment problems.



### Gain new insights into your machinery

Gain visibility into the health of your equipment and turn data into performance-driving insights. Allowing your business to be more agile, deliver greater output, or optimise safety, reliability and sustainability. Drive forward digitalization of your operations using Internet of Things (IoT) solutions to connect to your machinery plant wide and planet wide. Store and share data in the SKF Cloud and benefit from Big Data through SKF Enlight Centre dashboards, tailored to your workflows and giving easy to understand data interpretation. Connect directly to expert diagnostics and analysis, providing unrivalled application insights and advice to maximise rotating equipment performance.



### Reducing reliance on scarce talent

By working with SKF to connect our rotating equipment expertise to your business, you can reduce the time and cost of recruiting, training and retaining increasingly scarce and expensive maintenance and diagnostic skillsets.



### Operate more safely

Whether you want to ensure maximum operational safety, reduce product safety risks or navigate the minefield of EHSS regulations, SKF can help you drive operational safety, and a reduced incident rate will feed into your productivity too.



### Be more sustainable

SKF can work with you to reduce energy usage, waste output, spare parts consumption and more, helping you to deliver against your sustainability agenda, as well as saving on costs.



#### Solve

After pinpointing the root cause of recurring fan failures in an oil and gas operation, SKF used the Proactive Reliability Maintenance process to implement and maintain reliability improvements. By eliminating unplanned downtime, the programme saved the company more than \$2,5 million annually.

#### Rebuild

A 1 000 MW coal-fired power station identified six pulverizer roll wheel bearings that required overhaul before the pulverizer could return to service. SKF remanufacturing services saved the plant \$9 827 in new bearing purchases and related costs, plus five months of potential reduced power production worth over an estimated \$1,2 million in lost revenue.

#### Long term partnership & benefits

A large Pulp & Paper manufacturer has evolved their maintenance program over an 18 year period partnering with SKF to achieve:

- During first 7 years SKF helped to deliver 55% reduction in Downtime and 45% reduction in Bearing spend
- After 12 years SKF helped to deliver 75% increase in productivity of Plant inspection / analysis program (due to CM/ODR technology and remote monitoring)
- After 17 years SKF helped to deliver the 99% plant reliability target

# Solutions for every performance challenge

From getting the right maintenance tools, components and services to carry out your day to day maintenance tasks, to solving unexpected problems and stopping problems reoccurring completely – SKF can help. Benefit from our unrivalled application knowledge and experience across all major industries, combined with the advanced technologies and services you need to get the best performance from your plant equipment, meet your demanding business objectives and reduce your total cost of ownership (TCO).

We can assess your maintenance operations and benchmark this against your industry sector to highlight key areas for savings, and improvements to drive your business results. Apply the best monitoring systems and solutions to get robust early warning of machine failures and avoid costly unplanned downtime. Connect your machinery using the latest Internet of Things (IoT) enabled monitoring solutions. Use Big Data analysis to gain unique insights into your rotating equipment health and performance. And optimize your lubrication program and spare parts management processes to drive down costs and increase machine availability. Benefit by extending your equipment life through remanufacturing, saving money and reducing the environmental impact. Call us today and start uncovering opportunities to get the

best performance from your rotating equipment to meet your business goals.

## Maintenance strategy and improvements

Wherever you are on the maintenance maturity curve, there is always room to improve your rotating equipment performance and deliver greater value to your business. Whether you are mainly reactive to machine problems, run a planned maintenance program, or use condition monitoring to deliver a more predictive maintenance approach to managing your critical plant assets – SKF can help improve your rotating equipment performance. By assessing your current maintenance processes, benchmarked using actual data from similar operations within your industry, we can highlight key areas for improvement that will deliver the best value to your business, and help you to reach your targets for machine availability, production, cost of maintenance, and total cost of ownership (TCO).

## Avoid unplanned downtime

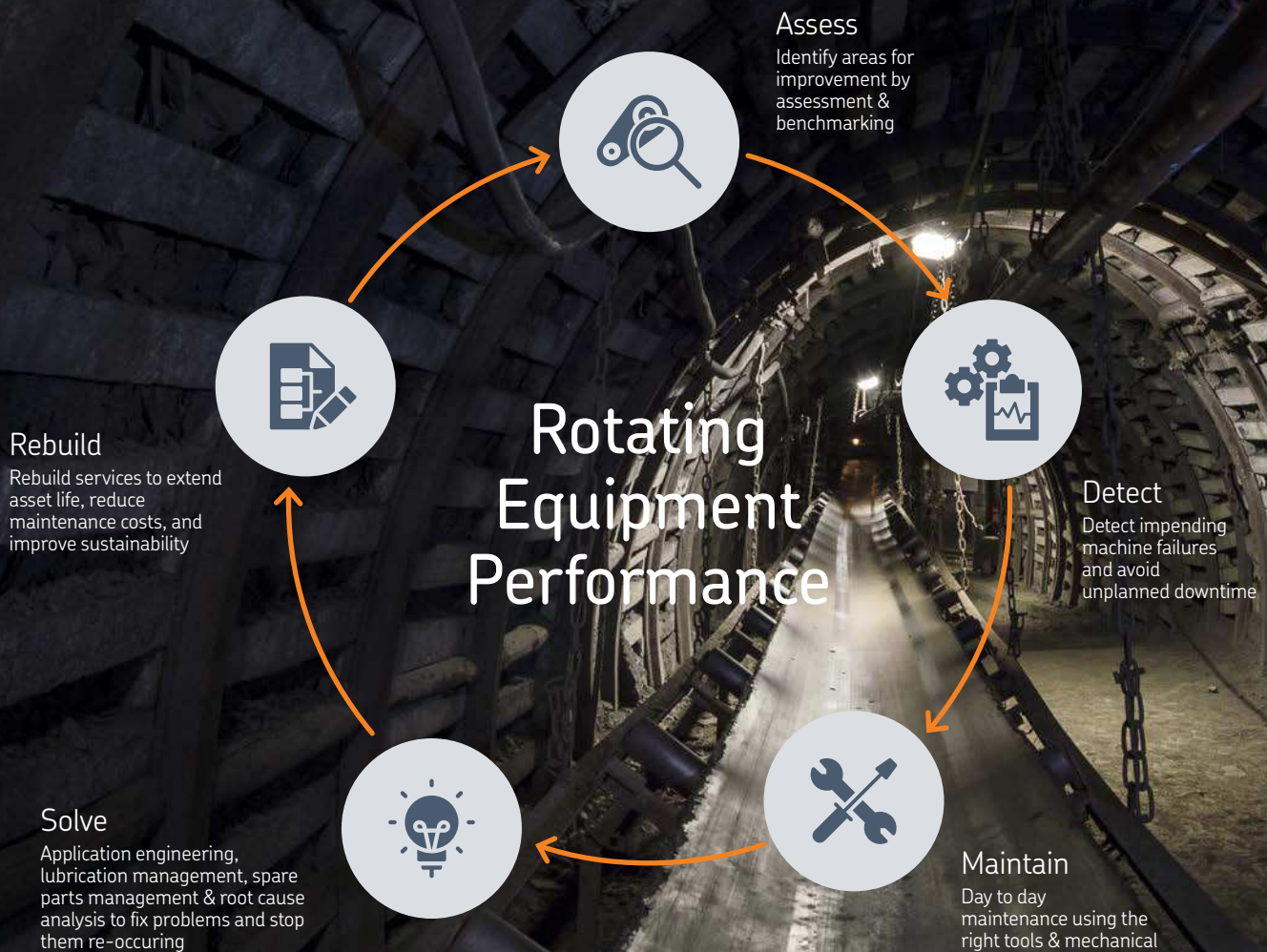
By monitoring your critical plant and equipment performance you can avoid costly unplanned downtime and lost production. SKF can provide the best

monitoring solutions matched against the criticality of your machinery, to help you get the best performance. The SKF range of monitoring technologies include on-line, wireless, and portable solutions combined with easy to understand dashboards, giving you valuable early warning and insight into your machine performance. We can also connect you to our SKF Remote Diagnostic Service centres, where we can analyse your data and provide feedback and advice. This reduces the burden on your skilled diagnostic engineers and empowers your maintenance teams to be more efficient and effective. Lubrication related problems can also severely impact bearing life, so take advantage of our long-standing lubrication expertise to work out the most efficient and effective way to keep your rotating equipment running with maximum efficiency and service life.

## Maintenance tools and engineering services

Day to day plant maintenance during planned or unplanned downtime requires the right tools and spare parts to get your machinery back up and running as quickly as possible. SKF offers a wide range of maintenance tools, ranging from bearing heaters and pullers to automatic lubrication systems,

We help our customers see where they could make gains as they strive for best performance.



supported by online Engineering Tools, to help you select and install the correct replacement bearing for your application. Where you need help with problematic machinery, SKF can support you with specialist Engineering Services such as alignment, balancing, mounting and dismounting, lubrication and rebuild services.

## Solutions that deliver value to your business

When something goes wrong, take advantage of our unrivalled application expertise to solve your problem and ensure the right solution for your needs. Thanks to our unrivalled knowledge of bearings, seals, lubrication and services, we can help you to reduce maintenance costs, increase productivity and energy efficiency, and optimise designs. We also apply our knowledge, expertise and experience to help our customers improve their rotating equipment performance by identifying and

eliminating problems using Root Cause Failure Analysis support services.

If you are looking for new ways to improve your business performance, with minimum investment, we can work with you to define a flexible business model to provide you with the products, technologies and services you need, or to create a performance based solution to help you meet your business objectives.

Working with us you can find innovative ways to access the help and support you need to improve the effectiveness of your maintenance strategy. You will benefit from the unique insights available from deploying Internet of Things (IoT) solutions to connect to your critical assets, and utilizing the resultant Big Data analytics to provide easy to understand dashboards and data interpretation. This can also benefit your spare parts management and availability, saving you money and ensuring you have the right parts available when you need them.

## Extend the life of your assets

Remanufacturing is a major contributing element to reduce life cycle cost of industrial equipment, giving overall benefits such as extended operating life of the equipment and reduced maintenance costs.

The circular economy and reducing your negative environmental impact is an increasingly important issue for our society, and remanufacturing can be a significant contribution to improved sustainability by reducing natural resource and energy use.

SKF has decades of experience in remanufacturing. Our service centers offer professional capabilities to remanufacture, refurbish, recondition, rework or upgrade of key industrial components and systems such as bearings and machine tool spindles.

Remanufacturing by SKF is performed by dedicated state-of-the-art service centers strategically located around the world. The service centers perform remanufacturing activities according to globally approved procedures and processes defined by SKF to fulfil the quality and performance demands of the industrial components.

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