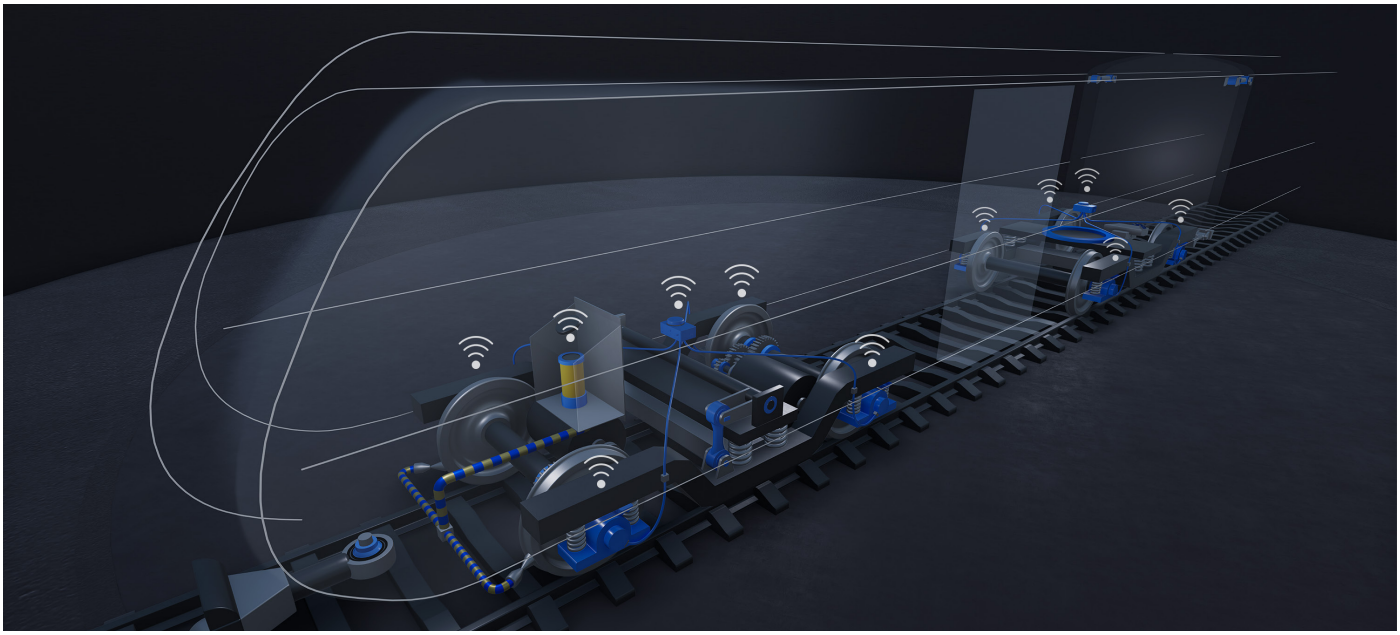
SKF

How Digitalisation and Performance Improvements Can Help Us Move towards a More Sustainable Railway



The global need for more sustainable transport means there will be more and more people travelling by train and a shift of freight transport from road to rail.

As physical expansion takes time and is very costly, the industry looks to digitalisation and increased train availability to make the railways more efficient. Additionally, even though the railway is the most sustainable form of transport, there is rising demand to further decarbonise the sector.
SKF offers innovative railway solutions and services that improve fleet efficiency and reliability – and decrease life-cycle costs – while supporting the industry on the way to net-zero goals.

Pushing Performance to Increase Uptime and Availability

Innovations, developments and upgrades in bearings and units, related products and condition-monitoring solutions are important to make passenger and freight trains run reliably and sustainably longer: they help extend maintenance intervals and reduce the risk of unplanned stops, minimising the total cost of ownership.

Extended maintenance intervals and planned service stops only when needed help maximise rolling stock availability. Only replacing what needs to be replaced, and

refurbishing rather than always buying brand new parts, also help minimise maintenance costs.

Knowing about bearing functional failure before it occurs is critical to avoiding unplanned downtime. Smart condition monitoring solutions – including machine learning, AI and connected SKF algorithms – can reduce the risk of stops or breakdowns due to bearing failures dramatically throughout the entire bearing lifetime. Combining them with field services and training that ensure proper installation reduces the risk of bearing failure even further.

Digital Solutions Driving Innovation and Efficiency Gains

Digitalisation is driving innovative technologies and opportunities in the railway industry. More can be achieved by using a digital twin, e.g. when developing and building new trains, changing technologies, and testing new concepts. Digital technologies are available to maximise business potential through efficiency gains in maintenance and operations.

Modern interoperable on-board condition-monitoring systems – like the IMx-Rail and Insight Rail – gather a multitude of data. SKF software systems then interpret the gathered data and present it in easy-to-understand user interfaces as valuable and actionable information. With the help of this information, SKF engineers can provide support with high-impact strategic activities. These include extending or optimising maintenance intervals, improving bearing performance, improving fleet reliability, and optimising the supply chain helping rail operators to reduce the total cost of ownership.

The power of the digital twin technology comes from connecting a digital model of a bearing with real-life data, creating a digital thread throughout the service life of the bearing. Instead of using assumptions of parameters like temperature levels, vibrations and other conditions, a digital twin uses data from its real-life counterpart.

The input data can be condition-monitoring data, service history and rebuild information – all relevant information of the bearing life. This technology opens up the possibility for more accurate predictions, for instance, remaining service life or the effects of higher loads.

Solutions for Sustainable Railways

Sustainability in railways has many aspects: longer use, less waste, safety, energy efficiency, environmental impact and profitability.

An important step in becoming more sustainable is moving from a linear to a circular economy. It is quite possible to reduce energy consumption, reduce waste and reduce the carbon footprint with the help of connected and tailored offerings as well as technology that makes operations more efficient.

The greatest environmental impact of SKF bearings comes from reducing energy consumption through friction reduction, and we constantly seek new ways to reduce friction even more. New lighter, stronger materials for all components in our bearings reduce the weight of applications, and the right lubricant for an application results inoptimised friction and longer bearing life.

Remanufacturing and refurbishing bearings can make a bearing capable of being used three times longer. Seals both protect bearings – making their service life longer – and reduce grease waste and, therefore, grease consumption.

SKF has been committed to efforts to reduce greenhouse gas emissions for many years. We are dedicated to decarbonising the full supply chain – from materials to the delivery of our products and solutions – with the goal to become net zero.

See the Latest SKF Solutions at InnoTrans

SKF comes to InnoTrans 2022 with a portfolio of railway-specific solutions and services that help optimise the use of both railway systems and rolling stock. Meet us in **Hall 22b at Stand 670**. If you book a personal meeting with an SKF representative, you will receive a free InnoTrans 2022 admission ticket.

Visit our digital hub
www.skf.com/innotrans2022
for details and updates.

SKF®

MEET US:
HALL 22B
STAND 670

More design choices for rail traction motors

Get more power from the same-sized motor, or design a smaller motor with the same power. Or, get a little bit of both: more power from a smaller motor. It's your choice with the new SKF Hybrid deep groove ball bearing with PEEK cage.

With its high-performance, robust 2-piece cage in PEEK material, it is lighter than traditional bearing designs. But, more importantly, this bearing solution enables higher power density, which leads to increased power output or supports the downsizing of motors.

The new SKF Hybrid deep groove ball bearing with PEEK cage is also developed to improve performance and reliability under extreme application conditions, while running more quietly and helping to reduce friction. So, the energy consumption can be reduced as well.

Talk to us about this and our other application-specific solutions and services at InnoTrans 2022.

Meet us physically in hall 22b at stand 670 and digitally by clicking or scanning the QR code. There you can book a meeting with an SKF representative, and receive a free InnoTrans 2022 admission ticket.