

A portrait of Bernd Stephan, a middle-aged man with grey hair, wearing a dark suit, white shirt, and brown tie. He is smiling slightly and looking towards the camera. The background is a blurred office setting.

# SKF

## AT THE BEARING WORLD CONFERENCE

*Bernd Stephan – AB SKF  
President Automotive & Aerospace*

**SKF is one of the main sponsors and supporters of the Bearing World conference, and sees it as a leading event to exchange state of the art technology and latest research results in order to make machines more powerful and more reliable.**

**We tried to reveal why SKF, one of the global bearing suppliers and leading company in bearing research and technology is sponsoring the Bearing World Conference during an interview with Mr. Bernd Stephan, President Automotive & Aerospace at AB SKF.**

**Why is SKF supporting the Bearing World conference?**

As a global bearing supplier and leading company in bearing research and technology, SKF is sponsoring the Bearing World Conference to distribute the current knowledge in rolling bearing technology to different industries. SKF sees this conference as a leading event to exchange state-of-the-art technology and the latest research results to make machines more powerful and more reliable. For us, it is very important that development and design engineers understand the technology and the development tools available to utilize the power of rolling bearings in the best way possible.

*“SKF wants to be the right partner for the new automotive powertrain developments and wants to offer the right bearing and seal technology for our customers.”*

The automotive drivetrain is evolving from the classic combustion engine drivetrain to different hybrid drives and pure electric drivetrains. These changes also require new rolling bearings with different features. SKF wants to be the right partner for these new automotive powertrain developments and to offer the right bearing and seal technology for

**Can you tell us more about your presentation topic at Bearing World?**

SKF will contribute a keynote speech as well as presentations on bearings for e-mobility, bearing damage, and heat treatment processes for bearing steel.

**What is the impact of Industry 4.0 on bearings and applications?**

Industry 4.0 is discussed everywhere, and there are also other titles with the same meaning used outside of Germany. For SKF it means the full digitalization and automation of Product Lifecycle Management (PLM), from the initial idea to the 3D design of products and processes with digital twins, to simulation and testing, manufacturing processes, quality, and supply chain, and finally to field performance, traceability, condition monitoring, field service, and all kinds of maintenance, including final recycling. To make this happen we need to digitalize everything we do and to connect all

*“We see clearly that the demand in hybrid bearings will increase in electric drive trains.”*

**What is your role at the company?**

President, Automotive & Aerospace  
In this position, I am also driving the technological development of rolling bearings and seals to meet new challenges in the Automotive and Aerospace industries.

**On which R&D activities are you currently working?**

our customers. At the first Bearing World 2016 in my keynote speech I talked about the new hybrid bearing technology with ceramic rolling elements, which will be even more important for these new powertrains. SKF is also able to calculate the life of these bearings with our General Bearing Life Model (GBLM). We believe that the high-speed electric drivetrains of the future with very high power density will need these new technologies.





C 30 900 MB L4



Hybrid ACBB VC444



Hybrid DGBB

systems with an automated solution, taking advantage of big data collection and analysis.

#### **What will be the challenges of drive technology for bearings in the future?**

Bearing performance and reliability have always been a challenge in new and demanding applications, and we at SKF have always found ways to tune bearings for these new applications. Rolling bearings have improved immensely over the last 100 years, and there is no end in sight. The electrification of powertrains in all industries will require rolling bearings with next-generation performance, and we are sure that we will be able to meet these requirements.

#### **It seems that electric cars need fewer rolling bearings (especially needle rolling bearings) and no sliding crankshaft bearings at all. How will this affect the future of the automotive bearing industry?**

Hybrid vehicles need even more rolling bearings than conventional ICE vehicles. Battery Electric Vehicles (BEV) may not need combustion engine plain bearings, but they still require rolling bearings for the electric traction motors and gearboxes. As I explained earlier, these bearings also need new technical features. We see no real problem for our rolling bearing business. It is surely a bigger challenge for companies focusing on combustion engines.

*“The rolling bearing industry has to continue with bearing research to move the performance and reliability of rolling bearings to the next level.”*

#### **Is it true that the use of bearings with ceramic balls will increase in electric cars?**

We clearly see that the demand for hybrid bearings will increase in electric drivetrains.

Hybrid bearings are better insulated against electric current flow and can achieve much higher speeds with less lubrication. Today, we already have a lot of electric motor and generator applications in different industries using high performance hybrid bearings. With the expected increase in motor speeds, hybrid bearing technology will be even more important.

#### **Electric cars include fewer small parts, especially precision ones. Does this mean that manufacturers will use fewer grinding operations and grinding spindles with high speed super-precision bearings?**

We also see that pure electric vehicles have fewer mechanical parts, but we don't see that the parts in the electric powertrain are any less precise. The

electric drivetrain has very low noise levels at high motor speeds, and therefore the precision of all components must meet very low noise requirements. The lower demand for mechanical parts per vehicle does have an impact on the industry, but on the other hand new components will also be needed.

#### **In your opinion, what are the main challenges for the bearing industry in the future?**

The rolling bearing industry has to continue to follow market demands very closely.

The new requirements will generate new bearing technology. The rotating shaft with rolling bearings will have a bright future in all kinds of applications. The rolling bearing industry must continue with bearing research to move the performance and reliability of rolling bearings to the next level. The digitalization of bearings, with sensors and condition management and full traceability, will also play a more important role for trouble-free operation.