

SKF eDrive Ball Bearing

Ultra-robust low friction and high speed ball bearing enables higher electric motor efficiency and power density

Electric and hybrid powertrains are a growing alternative to internal combustion engines for passenger cars. The need for efficient, compact and robust electric machines, such as traction motors or starter generators is significantly increasing. Development efforts are being made along the complete industry value chain to achieve these targets.

In order to achieve automotive power, efficiency and compactness targets, electric machines are facing higher speed and higher temperature.

This SKF new bearing family for the E-powertrain market is an enabler for higher electric motor power density. The main benefits are EV/HEV vehicle mileage increase, electric motor efficiency and robustness improvement.

Design

- Optimized internal geometry
- New patented high speed polymer cage
- Ultra low friction seal. Sealing efficiency is set according to application requirements
- Long life grease for high speed applications
- Optimized grease filling

Features

- Low friction torque
- No friction torque variation during lifetime
- No friction torque variation under axial loading conditions
- High speed ability and low self-heating at high speed

Customer benefits and competitive advantages

For the electric motor and E-powertrain manufacturer:

- Improved electric motor efficiency and power density
- Improved electric motor and battery reliability

For the car maker:

- Increased mileage.
For example, on a typical EV application, an improvement of 1% of the car electric range can be expected when using a set of optimized SKF bearing and sealing solutions in the E-powertrain.
- Increased battery lifetime by reducing number of charging cycles.



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