



BeyondZero driveline portfolio



The BeyondZero driveline portfolio was developed to reduce friction and overall CO₂ emissions while increasing product reliability according to the most important drivers in the automotive market.

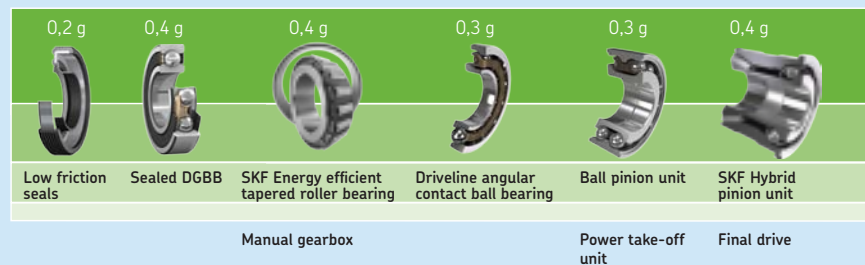
Benefits

For all Beyond Zero driveline parts in comparison to standard parts

- lower friction
- lower temperature
- longer life and increased reliability



CO₂ emission reduction per kilometre



Transmission input shaft seals

The input shaft of a transmission typically has the highest speeds of any shaft in the driveline of a conventional transmission.

SKF provides seals to meet this challenge, with a range of sealing materials which can withstand the high speeds and associated temperatures in aggressive oils used in today's modern transmissions.

Solutions include conventional shaft seals with a garter spring, seals with

an SKF Low Friction dynamic lip design as well as PTFE sealing elements.

Performance benefits:

- Friction reduced by up to 55% for reduced fuel consumption and CO₂ emissions
- Very long service life
- Installation simple as no pre-lubrication needed
- No problems passing end of line air leak test



SKF BeyondZero solutions can help reduce CO₂ emissions, preserve limited resources and protect the environment from the use and spread of toxic substances. For more details, including documentation on reduced environmental impact, visit www.beyondzero.com



SKF Energy Efficient tapered roller bearing

Optimised design reduces friction by up to 30%

The SKF Energy Efficient (E2 design) tapered roller bearings belong to SKF E2 performance class, providing up to 30% less friction than corresponding standard SKF bearings. Because friction loss is energy loss, SKF E2 design tapered roller bearings help deliver lower energy consumption.

Performance benefits:

- Friction is reduced by up to 30%
- Lower bearing temperatures improve lubrication conditions
- Lower friction allows for operation at much higher speeds
- Reduced weight

Sealed deep groove ball bearing for driveline

A new seal for deep groove ball bearings allows significantly lower friction and better sealing performance in automotive driveline applications.

Performance benefits:

Provides a more effective filtering which minimises contamination inside the bearing, enhancing bearing service life

- Lower power loss and higher efficiency at all operating conditions
- Capable of higher speeds compared to standard sealed deep groove ball bearings
- Increased robustness prolongs bearing and seal service life

- Reducing sealing friction by 50% compared to standard solution

Angular contact ball bearing for driveline applications

Angular contact ball bearings have raceways in the inner and outer rings that are displaced with respect to each other in the direction of the bearing axis. This means that they are designed to accommodate combined loads, i.e. simultaneously acting radial and axial loads.

High carrying capacity, optimised surface topography, innovative cage design and a separate mounting of outer ring and inner ring with ball set like a tapered roller bearing are some features of the product.

Performance benefits:

- Increase of speed rating
- No impact on current assembly processes
- High stiffness
- Contribution to lower fuel consumption
- Enhancement of lubricant service life
- Reduction of operating temperature
- Reduction of weight

Ball pinion unit

SKF's ball pinion units feature a double row angular contact bearing design that is extremely well suited to pinion gear requirements

Performance benefits:

- Provides correct and stable gear mesh
- Excellent stiffness by adapted contact angles

- Reduced friction and power loss
- Reduces overall CO₂ emission
- Easy and reliable mounting process at customer's assembly line
- Optimised dynamic capacity
- Minimised weight and package
- Optional with integrated seal-function

SKF Hybrid Pinion Unit

Based on a double row bearing design, SKF Hybrid Pinion Units feature a tapered roller bearing and an angular contact ball bearing in one unit. Pre-adjusted bearing sets provide the required axial clearance and is ready to fit without separate shimming process.

Performance benefits:

- Provides correct and stable position of pinion shaft
- Stiffer bearing support in light alloy housing under all operating conditions
- Reduces operating temperature
- Reliable preload adjustment
- Cost reduction potential by simplified assembly process
- Simplified logistics due to less parts
- Less power loss
- Improved fuel efficiency



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