



## Lower CO<sub>2</sub> emissions by reducing weight



### Environmental benefits

- For every 100 wagons, using SKF Low Weight Railway End Caps reduce carbon emissions by 632 kg/yr
- End cap is fully recyclable



### SKF Low Weight Railway End Caps can help railway operators and manufacturers cut CO<sub>2</sub> emissions.

Whether their fleet operates at high speeds or low, moves freight or passengers, today's rail operators are looking for ways to make their trains more energy efficient, without sacrificing performance, safety and reliability, or violating environmental regulations.

Reducing weight in assets and components offers one way to achieve this difficult balance. SKF has done it for wheelsets with the SKF Low Weight Railway End Caps.

Applying SKF knowledge engineering to end cap downsizing enabled a significant weight reduction – the new end caps are up to 37% lighter than conventional end caps operating in fleets worldwide.

### Fewer materials for less CO<sub>2</sub> throughout the lifecycle

Reducing end cap mass reduces the need for raw materials, which helps cut CO<sub>2</sub> emissions and environmental impact of the end caps at every phase of production and operation, including:

- Raw materials delivery
- Production
- Delivery to fleet
- Fleet operations

**The SKF Low Weight Railway End Caps weighs up to 37% less than conventional end caps. Replacing every end cap on the market with this SKF solution would cut CO<sub>2</sub> emissions by 25 280 tons annually.**



SKF BeyondZero solutions can help reduce CO<sub>2</sub> emissions, preserve limited resources and protect the environment from the use and spread of toxic substances. For more details, including documentation of reduced environmental impact, visit [www.beyondzero.com](http://www.beyondzero.com).



## SKF Low Weight Railway End Cap

### Optimized design boosts rail fleet energy efficiency and reduces environmental impact

By optimizing the geometry of the previous SKF Class K wheel end cap, SKF engineers reduced its weight by up to 37%. The result is the SKF Low Weight Railway End Caps – a Class K end cap that weighs just 3,76 kg.

### Operational features

- Serves as a sealing end cap to cover wheelset bearing ends
- Bolts to the bogie axle to protect the axlebox bearing

### Operational benefits

- Innovative design, shape and size reduces weight
- Operational in harsh environments
- Impact-resistant for robust bearing protection
- Water tight end cap to prevent water ingress
- Load capacity AAR-rated for Class K
- Corrosion-resistant for extended service life

### Energy saving example

Class K low weight end cap vs. Class K traditional end cap

The following calculation is based on 100 freight wagons:

- Speed = 80 km/h
- Number of caps in one wagon = 8
- Total number of caps = 800
- Running time = 5 940 h per year
- Distance during one year = 475 200 km

### Potential market usage of all types of end caps:

- Estimated 32 000 000 per year

**Baseline:** Class K end cap, 5.99 kg: most common solution on the market

### Results per year (100 freight wagons)

Class K/traditional end cap – 5,99 kg.	1 696	kg CO <sub>2</sub> e/ year
Class K/SKF Low Weight End Cap – 3,76 kg.	1 064	kg CO <sub>2</sub> e/ year
<b>Savings</b>	<b>632</b>	<b>kg CO<sub>2</sub>e/ year</b>

### Results for 32 000 000 end caps

Class K/traditional end cap	67 840	ton CO <sub>2</sub> e/ year
Class K/SKF Low Weight End Cap	42 560	ton CO <sub>2</sub> e/ year
<b>Savings</b>	<b>25 280</b>	<b>ton CO<sub>2</sub>e/ year</b>