TIMKEN

TIMKEN® ECOTURN® SEAL

Bearing seals significantly impact railcar performance and the cost of their operation. The Timken® EcoTurn® seal leverages extensive research and testing to deliver performance that is unmatched in the industry.

The Timken EcoTurn® labyrinth seal enhances the Timken® AP-2 Class K and AP Class F rail bearing assemblies. This patent-pending seal contains no rubbing surfaces, thus eliminating virtually all seal-generated torque. Almost zero torque means less power needed and less fuel burned. The bearings run cooler, last longer and can require less maintenance than bearings equipped with competing seal designs.

The EcoTurn seal proved superior at keeping water out of the bearing assembly and consistently outperformed the competitor's premium low-torque seal when tested by Timken utilizing the Association of American Railroads (AAR) M959 standard testing procedures for the equivalent of 100,000 service miles (161,000 km). The EcoTurn seal also exceeded the M959 water-exclusion requirements.

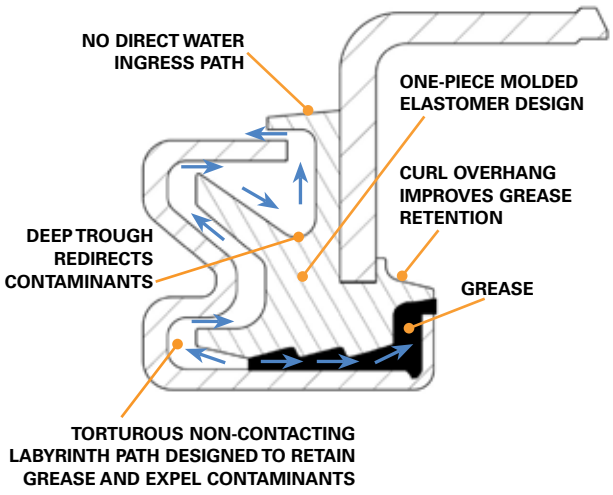


ECOTURN SEAL IS DESIGNED TO:

- Offer almost zero torque, which can save thousands of gallons of fuel annually and reduce emissions by several tons per year*
- Reduce hot-box set-outs
- Minimize temperature trending removals
- Provide water-exclusion capabilities for the duration of the wheel life
- Decrease grease weepage
- Reduce water etching and corrosion

**Based on a 100-car train traveling 100,000 miles (161,000 km) annually*

ECOTURN SEAL DESIGN ADVANTAGES

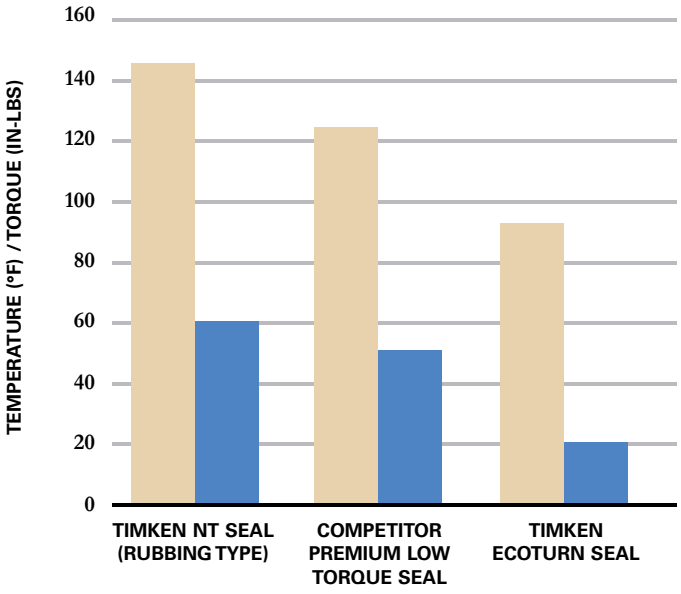


SAVING FUEL, REDUCING EMISSIONS

For rail freight applications, the EcoTurn seal offers an approximate 20 inch-pound (2.26 N-m) reduction in operating torque per bearing over its closest competitor. This torque reduction can lower the yearly fuel consumption required to pull a 100-car train by more than 13,500 gallons (51,100 L) – also reducing environmental emissions, including nitrogen oxides and carbon monoxide, by four tons (3.63 m tons). This is equivalent to removing 240 automobiles from the road. To calculate the annual fuel and emissions savings Timken can provide, visit **www.timken.com/railsavings.**

REDUCING HOT-BOX SET-OUTS

The EcoTurn seal reduces the possibility of hot-box set-outs by providing the lowest average operating torque and temperature compared to the competitor's premium low-torque seal and a traditional rubbing-type seal.

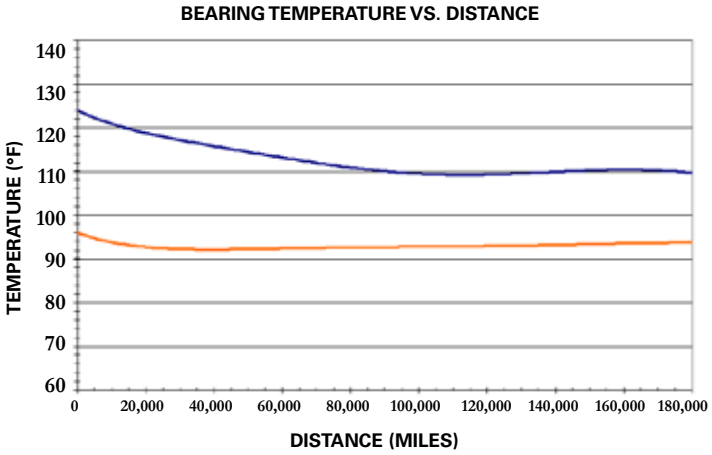


Test Conditions - Class F Unloaded Bearing at 70 MPH (113 kph) for 100 hours

- *Average temperature*
- *Average torque*

OPERATING COOLER OVER WHEEL LIFE

After a few thousand miles, most seals wear-in and then stabilize at a certain torque level. Some seals wear in too much and lose their ability to exclude water and retain grease. The EcoTurn seal needs no wear-in. It quickly and consistently provides low torque and low temperatures, and its sealing capabilities do not degrade over the duration of the wheel life.



Test Conditions - Class F Unloaded Bearing at 70 MPH (113 kph)

- *EcoTurn seal temperature*
- *Competitor's premium low-torque seal temperature*

LET US HELP

Timken is a recognized leader in reducing emissions and operating temperatures for rail customers around the world. ***For more information on Timken rail solutions, contact a local Timken representative or visit www.timken.com/rail.***

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets high-performance mechanical components, including bearings, gears, belts, chain and related mechanical power transmission products and services.

Stronger. **Commitment.** Stronger. **Value.** Stronger. **Worldwide.** Stronger. **Together.** | **Stronger.** By Design.

www.timken.com

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