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INDUSTRIAL CASE STUDY

RAILWAY BOGIE SYSTEM
LOW FRICTION & WEAR-RESISTANT POLYMER SOLUTIONS

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RULON® FLUOROPOLYMERS & HYCOMP© COMPOSITES

RAILWAY BOGIE SYSTEMS: LOW FRICTION & WEAR-RESISTANT POLYMER SOLUTIONS

Alessio Romiti December 2024

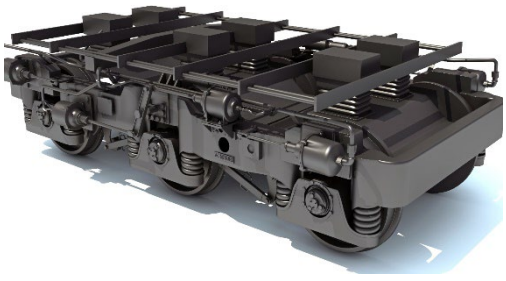
INDUSTRIAL RAILWAY ENERGY SAVING WEAR FRICTION CONTROL

Environment

When you are traveling on a railway train, do you notice the bogie system? This critical equipment usually goes unnoticed as it is attached underneath the carriage by bearings along with axles and wheels. The moving system is important to safety and performs the following functions: 1) Supports the mass of the railcar body, 2) Ensures stability on straight and curved tracks, 3) Provides a comfortable ride by absorbing vibration generated by the track. Due to the train's movements, a bogie system needs to handle constant friction and wear from the wheel-rail interface as well as the sliding center plate and side bearings. Achieving these performance requirements, including a significant maintenance cost reduction, is a main target for those who service and work in this transportation sector. Wear and friction control polymer components support the stability and safety of the bogie: increasing lifecycle, providing high performance, and saving energy.

Challenge

A bogie system can be compromised due to the changing nature of its working environment such as weather (dust, snow and high winds) and long-term use (high forces and continuous motion). These extreme conditions are challenging to materials and components used in the bogie due to mechanical limits. If the coefficient of friction is too high, this results in too much friction, which makes it very difficult to brake and perform reliably on the tracks.



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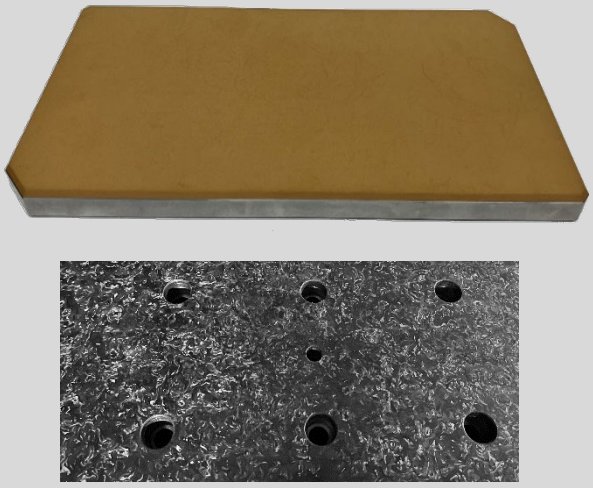
Solution

Omniseal Solutions has collaborated with Industrial industry partners for many decades, developing high-performance solutions for heavy-duty applications and extreme environments. As part of the top tier in the polymer pyramid, our Rulon® fluoropolymers have a proven history (starting from the Industrial Revolution) of solving challenging friction and wear issues due to their resilient mechanical properties. Not only does our polymer material solution take care of wear and friction, it is also low weight and cost-effective, engineered to replace and protect metal bearings and components that are more expensive. In addition to the Rulon® solution, our Hycomp© composites offer superior wear resistance and weight saving, being used in railway applications as well as industrial canning production and extrusion equipment that are challenged by wear and friction.



For railway bogie applications, customers can use Rulon® J or Hycomp© components that are combined with a metal sliding plate. This design requires no lubrication and provides longer life, which lowers maintenance costs. As global railway and transportation technology advances, performance requirements in terms of friction, load and speed will also increase – and polymer seals and components must be equal to the task.

To Handle Load, Wear & Friction For Bogie Systems, Rulon® J Fluoropolymers & Hycomp™ Composites Keep Your Railways Moving

Benefits

- Precision solutions that are custom engineered for each customer's design and requirements
- FEA modeling analysis to minimize and shorten design phase and costs
- Longer life and less maintenance (downtime cost)

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Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and wear control solutions that protect critical applications in the most demanding environments and passionately driven to push *Beyond the Boundaries of Possible*.

Contact Our Expert

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