



Fire Protection in Rail Transport

Continental Ensures Enhanced Safety

Fire Safety on Track

Innovative Solutions for Passenger and Freight Rail Transport

Continental is at the forefront of providing advanced rail safety solutions that ensure compliance with national and international standards, such as the European fire protection standard EN 45545, while also realizing individual customer demands. To develop our fire safety solutions, we utilize the materials and longstanding development expertise of our business units. The robust and durable products not only increase safety, but also offer maximum comfort for passengers in various climatic conditions. That way, Continental enables safe and efficient rail travel across the globe.



Compliance with EN 45545

The European standard EN 45545 was developed to guarantee fire safety in rail vehicles. The aim is to ensure the safety of passengers and staff by minimizing the risk of fire and limiting the effects of a fire in a rail vehicle.

EN 45545 includes requirements for the flammability, smoke development, and toxicity of materials used in rail vehicles. All Continental products are thoroughly tested in constant quality controls and certified to comply with EN 45545.

Norm Conformity Tests

We conduct extensive tests on all components for rail vehicles in our certified test laboratories to ensure maximum safety. For example, the following steps were carried out to test newly developed a material for Air Spring Systems in order to comply with the standard EN 45545 and at the same time meet the requirement of the component:



PART 1:

Time to Ignition

Measuring the resistance



PART 2:

Heat Release

Measuring the heat energy release



PART 3:

Smoke Density

Measuring smoke density to stay below hazard level



PART 4:

Smoke Toxicity

Measuring smoke toxicity levels twice during a 10-minute test

Key Products and Solutions

› Folding Bellow Material:

The folding bellows, used as flexible connections between train cars, are designed to withstand harsh environmental conditions and meet EN 45545 fire protection standards. They are exceptionally durable, weather-resistant, and available in various designs and thicknesses.



› State-of-the-Art Sensors:

Continental's sensor concept is made from robust materials that withstand extreme conditions and temperatures up to +250° C. These sensors provide haptic feedback and can be installed throughout a rail vehicle, enhancing safety and monitoring in door systems, flooring, and other sensitive areas.



1. Comfort and Safety

Continental's products ensure not only the highest safety standards but also enhance passenger comfort through innovative material technologies.

1.

2. Global Reach and Versatility

The solutions are suitable for all climate zones and operational environments, making rail travel safer and more comfortable worldwide.

2.

3. Sustainability

Continental's products are developed with an emphasis on durability and low environmental impact, contributing to the overall sustainability of rail transport.

3.

› Surface Materials:

Durable and fire-resistant surface materials for train seats and flooring that comply with EN 45545 standards. These materials offer high resistance to wear, tear, and fire, while also being easy to clean and customizable.



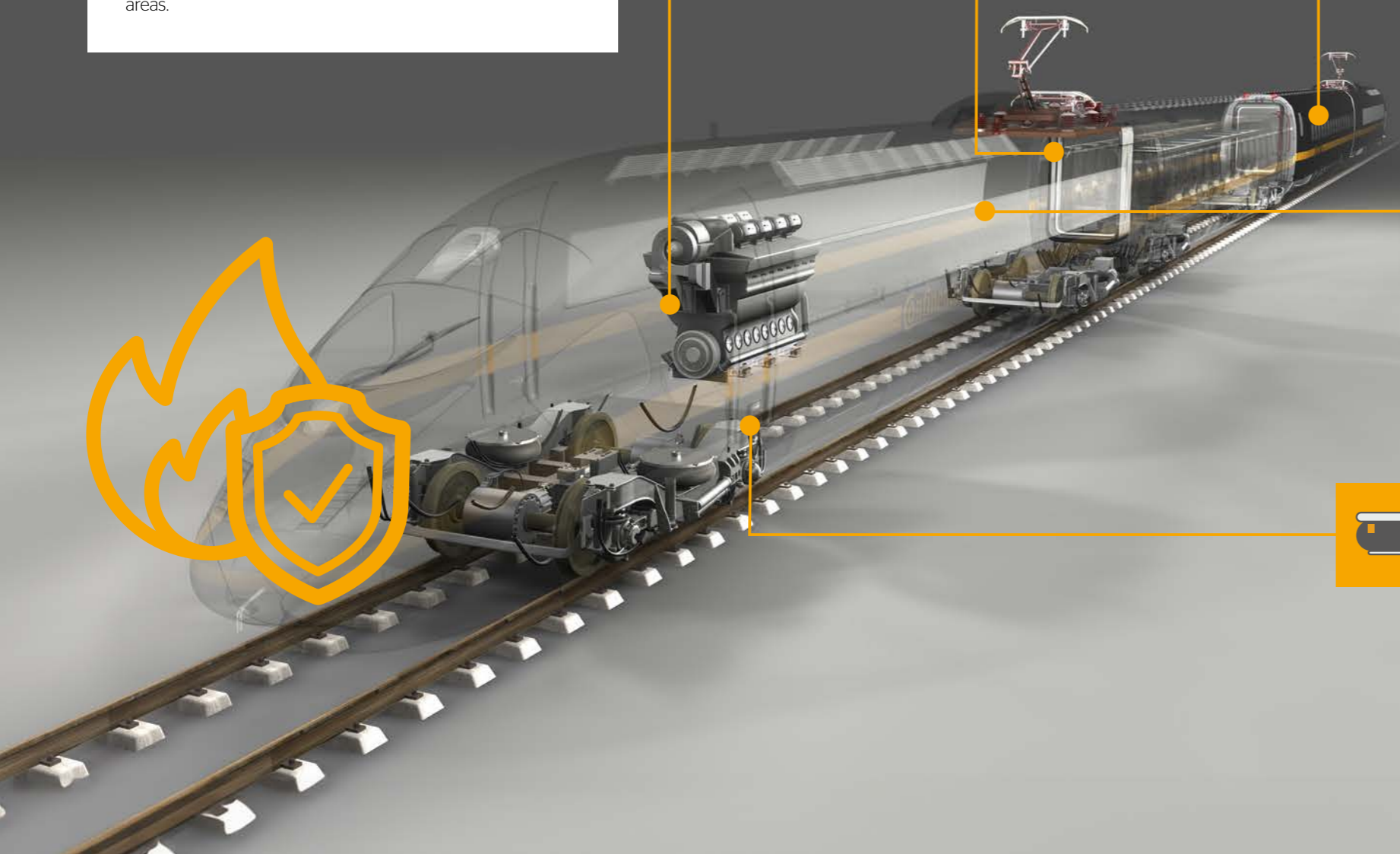
› High-Performance Hoses:

Continental provides a range of high-performance hoses for applications like compressed air, potable water, and cooling systems in rail transport. These hoses, made from high-quality rubber compounds, meet strict fire protection standards, including EN 45545 and DIN 5510-2, ensuring flexibility, durability, and safety.



› Air Spring Systems:

Continental's air spring systems comply fully with the EN 45545 fire protection standard. The components are made from specially developed rubber compounds that meet stringent fire protection and durability requirements, ensuring long-lasting performance and enhanced safety in rail transport. The air springs can withstand maximum temperatures of up to +80 °C.



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