

Progress in Fast Motion: "Tire Technology" Whitepaper Details Milestones in Tire Development



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BY [CONTINENTAL AG](#)

Report highlights how Continental's tire technology shapes mobility

- A century ago, Continental laid critical foundation for modern tire development with its cord balloon tires
- Edwin Goudswaard, Head of Research and Development at Continental Tires:

Tire technologies from Continental have had an increasingly significant effect on mobility.

Hanover, Germany, December 17, [2024.Today](#)'s tires are high-tech products that combine safety, efficiency and comfort. Tires enable mobility. Yet, what may seem to be a matter of course today is in fact the result of over 150 years of intensive development. From the first pneumatic tires and the first tread patterns through to safe winter tires and energy-efficient, intelligent tires – at various milestones, Continental has redefined tire technology time and time again. The latest "Tire Technology" whitepaper outlines on 32 pages the key steps in tire development, from a simple rubber product to a central component of vehicle technology.

Exactly 100 years ago in 1924, Continental was the first German company to introduce balloon tires, which required considerably lower air pressure. Suddenly, tires were no longer as rigid and stiff. Instead, they provided an air cushion for added ride comfort and security,

explains Edwin Goudswaard, Head of Research and Development at Continental Tires. This was thanks to the new, pliant cord-fabric textile that replaced the square woven linen fabric that had previously been used in tires. The balloon tire marked a new chapter in tires for passenger cars and commercial vehicles – offering better grip and

leveling out any unevenness from the road surface.

Tire technologies from Continental have had an increasingly decisive impact on advancements in mobility. The safety and value proposition of our tires is backed by an excellent team of tire experts. This has been the case for over 150 years.

Milestones in ride comfort

When the Continental-Caoutchouc- and Gutta-Percha Companies was founded in 1871, road traffic was still in its early infancy. The first predecessors of tires manufactured by Continental were designed for horse-drawn carriages and bicycles. The start of modern vehicle tire technology was marked by the development of the pneumatic tire. It offered huge improvements in terms of ride comfort compared to the solid rubber tires that were common until then. This was an innovation Continental adopted early on. Much more progress was to follow, such as the introduction of demountable rims and tread wear indicators. Both of these innovations simplified maintenance and improved reliability.

Continental reached the most important milestone in terms of comfort in 1943 when it registered a patent for tubeless tires. This innovation still shapes tire production today,

says Goudswaard. This is because tubeless tires weigh less, leading to reduced rolling resistance and therefore greater energy efficiency. Ride comfort is better thanks to the low air pressure. In addition, tubeless tires are low-repair and low-maintenance.

Highest safety standards – even on winter roads

Since the very beginning, continuous safety improvements have always been a top priority for Continental engineers. In 1904, Continental developed the first car tires with a tread pattern, improving grip on the road. The launch of one of the world's first winter tires in 1934 led to considerably greater safety on winter roads. And the use of silica in tire rubber mixtures from 1994 increased the braking effect, while the load significantly minimized rolling resistance.

Efficiency for sustainable mobility

Since the energy crisis in the 1970s at the latest, reducing rolling

resistance to lower energy consumption of vehicles has been a core task of developers at Continental. This led Continental to develop the concept of efficiency-optimized tires to save fuel and extend mileage. New material mixtures and technological innovations such as the ContiEcoContact series also contribute toward more efficient mobility and lower carbon emissions. Furthermore, today Continental offers tires that are optimized to the properties of electric vehicles.

With the introduction of sensor technologies, Continental ultimately redefined the role of the tire for vehicles. The ContiPressureCheck system, for instance, continuously monitors tire pressure and temperature, alerting the driver and fleet operator immediately about any potential risks. Since 2024, tread depth measurement of commercial-vehicle tires has also been part of the solution portfolio. This is enabled by a new generation of sensor as well as AI-based algorithms that automate the tread depth checks and supply daily updated data on upcoming services and tire changes. Through the networked, digital solutions offered by ContiConnect, Continental gives small to large-sized fleets the opportunity to automate their maintenance processes, reducing costs and idle times and therefore increasing their operational capability.

The whitepaper dedicated to tire development, once again emphasizes the innovative strength of Continental as well as its commitment to sustainable, safe and comfortable mobility.

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