

Q & A

DPD Switzerland, Futuricum and Continental Show the Way Forward for E-Mobility in the Transport Sector With a World Record

Purpose of the document

This document answers questions about the distance world record of the three companies DPD Switzerland, Continental and Futuricum.

All media inquiries should be sent to Christian Mascarenhas:

E-mail: christian.mascarenhas@designwerk.com

Phone: +41 44 956 21 00

Key messages

- The three partners DPD Switzerland, Continental and Futuricum have set a world record with Europe's largest capacity electric truck.
- The record is for the longest distance driven by an electric truck without recharging. The official GUINNESS WORLD RECORDS™ title: Greatest distance by electric rigid truck, single charge is 1,099 kilometers (682.88 miles), set by Designwerk, DPD Switzerland and Continental at the Contidrom test site in Wietze, Germany.

Q & A

Details of record-breaking run

Start: 6:37 a.m. CET

End: 5:33 a.m. CET next day

Duration: 22 hours and 56 minutes

Record distance reached: 1,099 km (682.88 miles)

Average speed: 50 km/h (31 mph)

Average consumption: 58 kWh/100 km (1.09 m/kWh)

Vehicle unloaded weight incl. swap body: 15.5 metric tons

Who set this record?

The three partners and Designwerk Products AG, DPD Switzerland and Continental AG, with the Designwerk Products brand Futuricum.

Where was the record set?

The record was set on the high-speed oval at the Contidrom in Jeversen, near Hanover. The route is 2.8 kilometers (1.7 miles) long, flat on the straight stretches and banked on the two curves. The Contidrom is the in-house test center of tire manufacturer Continental, and its diverse, precise possibilities have made it more important than ever over the years, making possible further development of tires in connection with research and development by evaluating performance characteristics on the test tracks.

How was the record measured?

The data, time, GPS position, GPS speed, longitudinal and lateral acceleration, and topographical height were recorded with an Avisaro series 4.0. The measured driving time was 22 hours and 56 minutes – the total distance covered was 1,099.9 kilometers (682.88 miles). In accordance with the rules of GUINNESS WORLD RECORDS™ there were independent witnesses present throughout the record attempt to confirm the information.

How many drivers drove?

Overall, the record was set with two drivers. They changed every 4.5 hours to ensure compliance with the statutory rest periods.

Has the record been officially confirmed?

The record was officially attested and the evidence submitted was confirmed. This means that the three partners were awarded the GUINNESS WORLD RECORDS™ title of **longest route driven in an electric truck without intermediate charging** of 1,099 kilometers (682.88 miles).

Details of vehicle

What type of vehicle was used for this record?

A Futuricum electric truck, model Logistics 18E, was used for the record. This is used on a daily basis at DPD Switzerland.

What's the truck's capacity?

The Futuricum Logistics 18E has four batteries with 170 kilowatt hours each, giving a total storage capacity of 680 kilowatt hours. This is currently the largest capacity electric vehicle on the road in Europe.

What are the options for charging trucks?

- 22 kW on-board
- 44 kW on-board
- 150 kW off-board using CCS type 2
- 350 kW off-board using CCS type 2

How long does it take to recharge the batteries?

- Charging time with type 2 AC 22 kW → 29.2 hours
- Charging time with type 2 AC 44 kW → 14.6 hours
- Charging time with CCS type 2 150 kW → 3.1 hours
- Charging time with CCS type 2 350 kW → 1.3 hours

Are there any details about the drive?

The electric truck has an output of 500 kW and 680 hp. It is driven by a 1-gear transmission and has no gear shifts or clutches.

Are there other vehicles of this type on the market?

There are no known competitors currently on the market with this range.

What about the sustainability of the batteries?

As a recognized BMW industrial customer, Designwerk works here to supply battery components at modular level. BMW respects and undertakes to purchase raw materials in accordance with eco-friendly standards. This trend toward eco-friendly and ethical extraction of raw materials is driving the company. In addition, no valuable raw materials will be lost once batteries have been used in our commercial vehicles. More than 90% of these will be recycled and the raw materials reused.

Tire details

Which tires were used on the vehicle?

Continental Conti EfficientPro tires were used for the world record.

What made them particularly suitable?

The Conti EfficientPro line is available for steering and drive axles and has been specially developed for long-distance transportation on interstate highways. These tires focus on fuel efficiency. In developing the Conti EfficientPro, Continental built on tried-and-tested technologies already in use in the EcoPlus tire series. Specialized rubber compounds for all components, the multi-layer design of the treads, and the optimized rolling characteristics greatly reduce rolling resistance, meaning that both the Conti EfficientPro steering tires and also the drive axle tires have achieved the EU "A" quality label for the highest level of fuel efficiency.

What are the changed requirements for commercial vehicle tires for e-mobility?

New vehicle concepts need modified requirements for tire design for optimum tire performance. The resulting modified requirements for tires in terms of wear resistance, wet grip and handling are leading to a range of tires that are more specialized for e-mobility. The close cooperation between research and development departments of vehicle and tire manufacturers has led to even greater focus on the importance of tires in terms of rolling resistance and service life. In the years to come, the challenge for the development department will be to design new tires that are optimally adapted to electric drives, while at the same time maintaining the familiar maximum safety, efficiency and environmental protection.

The electrification of power transmission technology requires adaptation to a change in emphasis on key tire properties. Wheel loads and resulting tire pressures are changing. Axle load distributions shift. Despite the decreased complexity in the drive train of an electric motor, wheel loads can increase due to the weight of the traction batteries and, if necessary, also shift between axles compared with a diesel truck. This makes it necessary to increase tire carrying capacity. Continental develops and produces tires that are optimized for these requirements.

Which criteria influence tire efficiency?

Rolling resistance is controlled mainly by means of the rubber compound in the tread area, tire size and tread profile. The more energy tires turn into heat, the greater the rolling resistance. Continental specifically develops tires with rubber compounds that result in the tire dissipating less energy, positively impacting rolling resistance.

How sustainable are commercial vehicle tires?

Sustainability is an integral part of Continental's "Vision 2030" strategy program for the Tires business area, and is firmly anchored in our corporate values. Our goal is to be the most advanced tire company in terms of ecological and social responsibility. For this, we pursue innovative technologies and sustainable solutions along our entire value chain, and continuously invest in research and development into innovative technologies, alternative and sustainable materials, and environmentally friendly production processes. We also use products with particularly low rolling resistance to promote sustainable mobility.

Retreading plays an important role in commercial vehicles. With the ContiLifeCycle retreading concept, Continental is focusing on recycling management. For this, Continental designs the carcass of a commercial vehicle tire in such a way that the tire can be retreaded up to four times. This gives Continental's truck tires multiple new lives. Around 70 percent of the tire material is retained – the carcass and part of the rubber. The remaining 30 percent of rubber material is used for energy purposes. Compared with the production of a new tire, the energy required for retreading is around 50 percent lower, the water requirement is around 80 percent lower, and up to 70 percent less crude oil is required. In addition, an average of 50 kg less raw materials are used for retreading, which is also equivalent to an average saving of around 70 percent compared to the production of a new tire. Overall, production of retreaded tires causes 30 percent lower CO2 emissions than the production of new tires.

Details of transport logistics

How sustainable is DPD Switzerland's transport logistics?

DPD has been delivering each package in a CO2-neutral way since 2012 – without additional costs for customers. Since March 2021 DPD Switzerland has been going one step further, with a Futuricum brand fully electric truck equipped with the most powerful vehicle battery available in Europe, with a range of up to 760 km per charge. Using electric trucks saves approx. 72 metric tons of CO2 every year.

In addition, part of the volume has already been shifted from road to rail, saving up to ten truck journeys and around two metric tons of CO2 a night, depending on the size of the package.

What are DPD's plans for the future?

By the end of 2025, the DPDgroup is planning to reduce CO2 emissions per package by 30 percent. To achieve this goal, it measures and continuously reduces its CO2 emissions, and compensates for remaining CO2 emissions. So far, the DPDgroup has reduced traffic-related CO2 emissions by 19 percent per package compared to 2013. In Switzerland, packages will be delivered emission-free in at least six Swiss cities by 2025. In addition, part of the volume has already been shifted from road to rail, saving up to ten truck journeys and around two metric tons of CO2 a night, depending on the size of the package.

Which Swiss cities already have electric delivery?

Since May 3, 2021, Schaffhausen has had one electric delivery vehicle, and two more will follow. The first DPD electric van is already in use in Zürich, and ten electric vans are already on the road in Geneva.

General information

Who are the three companies?

The Designwerk Group sells electric trucks under the Futuricum brand which replace the conventional diesel drive with an electric drive and battery system developed by the Designwerk Group. The company's product portfolio also includes mobile quick-charging devices, modular battery systems for electric vehicles, and contract development and design. Since April 2021, the Designwerk Group has had the Volvo Group as a new key investor, with a 60% share in the company.

Continental develops ground-breaking technologies and services for the sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent and affordable solutions for vehicles, machines, traffic, and transportation. In 2020, Continental generated sales of EUR 37.7 billion and currently employs approximately 235,000 people in 58 countries and markets. In 2021, the company celebrates its 150th anniversary. The Tires business area has over 24 production and development locations worldwide. Continental is one of the leading tire manufacturers and generated sales in this business area of €10.2 billion in fiscal year 2020 with more than 56,000 employees. Continental ranks among the technology leaders in tire production and offers a broad product range for passenger cars, commercial and special-purpose vehicles as well as two-wheelers. Through continuous investment in research and development, Continental makes a significant contribution towards mobility that is safer, more cost-effective and more ecologically efficient. The portfolio of the Tires business unit includes services for the tire trade and fleet applications as well as digital tire management systems.

DPD Switzerland is one of Switzerland's leading private express and package service providers and, with 1,100 employees and drivers, processes over 24 million packages a year for both companies and private individuals. In addition to its headquarter in Buchs/Zurich, the company is also represented at eleven other locations in Switzerland and cross-border. DPD Switzerland is part of the DPDgroup.