



## **MAN expands zero-emission portfolio**

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### **Small truck series with hydrogen combustion planned for 202**

- **Initially around 200 vehicles for selected markets**
- **hTGX particularly suitable for special applications**
- **Vehicle complements battery-electric portfolio**

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Commercial vehicle manufacturer MAN Truck & Bus will be the first European truck producer to launch a small series with a hydrogen combustion engine. The initially planned small series of around 200 units is to be delivered to customers in Germany, the Netherlands, Norway, Iceland and selected non-European countries as early as 2025. The "MAN hTGX", as the vehicle will be called, offers an alternative zero-emission drive variant for special applications, for example for transporting heavy goods - such as construction work, tank transport or timber transport. The hTGX can also be an environmentally friendly alternative to battery-electric trucks for use in areas without sufficient charging infrastructure or for markets where sufficient hydrogen is already available. MAN will hand this over to customers for the first time in 2024 and scale it up from 2025.

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"In order to decarbonise road freight transport, our focus remains on battery-electric vehicles. These currently have clear advantages over other drive concepts in terms of energy efficiency and operating and energy costs. However, lorries powered by hydrogen combustion engines are a useful addition for special applications and markets. We anticipate that we will be able to best serve the vast majority of our customers' transport applications with battery-powered trucks. For special applications, hydrogen combustion or, in future, fuel cell technology is a suitable supplement. The hydrogen combustion engine 'H45' is based on the proven D38 diesel engine and is produced at the engine and battery plant in Nuremberg. The use of familiar technology enables us to enter the market at an early stage and thus provides a decisive impetus for the ramp-up of the hydrogen infrastructure. With the hTGX, we have now added an attractive product to our zero-emission portfolio," says Friedrich Baumann, Executive Board Member for Sales & Customer Solutions at MAN Truck & Bus.

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual revenue of about 14,8 billion euros (2023). The company's product portfolio includes vans, trucks, buses/coaches and diesel and gas engines along with services related to passenger and cargo transport. MAN Truck & Bus is a company of TRATON GROUP and employs approx. 33,000 people worldwide.

The hydrogen drive can score points, especially when it comes to special transport tasks that require a special axle configuration or where there is no battery space on the frame due to necessary superstructures. The MAN hTGX in its initially offered axle variants 6x2 and 6x4 offers a maximum range of up to 600 kilometres in addition to a high payload. The H45 hydrogen combustion engine used has an output of 383 kW or 520 hp and a torque of 2500 Nm at 900-1300 rpm. The direct injection of hydrogen into the engine ensures particularly fast power delivery. The vehicle can be refuelled in less than 15 minutes with hydrogen compressed to 700 bar (CG H<sub>2</sub>) and a tank capacity of 56 kg. With less than 1g CO<sub>2</sub> /tkm, the MAN hTGX will fulfil the criteria as a "zero-emission vehicle" under the new planned EU CO<sub>2</sub> legislation.

Dr Frederik Zohm, Chief Research and Development Officer, adds: "The new CO<sub>2</sub> regulations at EU level will classify trucks with hydrogen combustion engines as 'zero-emission vehicles'. This means that such vehicles will fully contribute to our CO<sub>2</sub> fleet targets, which also opens the door for this small series that complements battery electric vehicles. At the same time, depending on the country, our customers benefit from corresponding toll reductions, for example. At MAN's Nuremberg site, we have the most innovative engine technology and decades of experience in the use of hydrogen as a fuel. We are utilising this and presenting a real MAN with the MAN hTGX. The new hydrogen combustion truck is based on the tried-and-tested TG vehicle series and impresses with the highest quality and uncomplicated maintenance. We will continue to research fuel cell technology based on battery electrics and hydrogen. H<sub>2</sub> fuel technology is also in preparation at MAN. However, it will be several years before the technology is really ready for the market and competitive."

As with eMobility, MAN not only emphasises the development and production of innovative and reliable vehicles in line with its "Simplifying Business" claim for the H<sub>2</sub> drive system, but also supports customers with comprehensive service and consulting offers when switching from diesel to zero-emission vehicles.

### **MAN and hydrogen - a long history**

MAN has a long history with hydrogen drives, and the company has been researching them for decades. MAN Truck & Bus presented the first hydrogen-powered bus at the Hanover Fair in 1996: the SL 202 city bus was powered by a natural gas engine that had been modified for hydrogen operation. Following the Hanover Fair, the vehicle completed a three-quarter year test phase in Erlangen, during which it travelled 13,000 kilometres and carried 60,000 passengers. The bus finally arrived in Munich in 1997 and

was successfully deployed in regular service there. This was followed in 1998 by three articulated buses for Munich Airport, which were used until 2008, and a further 14 hydrogen-powered buses between 2006 and 2009.

In addition to its earlier and more recent experience with commercial vehicles, MAN is now also developing and testing the hydrogen engine for the MAN Engines division in a wide range of applications on and off the road as well as on water. For example, it is well suited for special vehicles such as snow groomers, for trains on non-electrified routes and for excavators and cranes. Use in combined heat and power plants is also sensible, especially if the heat generated can be utilised in addition to the electricity.