Press information
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‘V8 of the electric era’ presented in Vienna
The key to the energy transition lies in the diversity of drive systems

The saying, ‘many roads lead to Rome’ also applies to the energy transition in mobility industry, stressed Professor Bernhard Geringer at the International Vienna Motor Symposium 2025: ‘When it comes to defossilising motor vehicles, aircraft and ships, diversity of approach is essential’. To illustrate this point, a new electric motor that does not require rare earth elements was presented at this year’s Motor Symposium in Vienna. This groundbreaking piece of engineering could be a vital step towards increasing Europe's independence from China in terms of raw materials needed for sustainable vehicle production.

Holger Klein, CEO of the automotive supplier ZF Friedrichshafen, added: ‘Our mature economy is facing its ultimate test. Only through innovation will we be able to overcome the major challenges to future mobility which Europe is facing.’ The drive system remains at the heart of efforts to defossilise transport, no matter how connected and intelligent a vehicle may be. However, the industry is faced with highly diverse regulatory requirements, customer preferences and differing energy policies around the world. Added to this is Europe's dependence on raw materials, particularly in battery-electric mobility. China dominates not only in the production of batteries and electric motors, but also in producing the rare earths that are essential raw materials. ZF is countering this with the development of an electric motor without permanent magnets that does not require rare earths.

‘V8 of the electric era’
Mercedes-Benz is also proud of some of its own developments. These include an axial flow motor, which was presented by **Torsten Eder**, Vice President Electrified Drive Systems at Mercedes-Benz Cars Development. The new electric motor will be ‘the V8 of the electric era’ in AMG models. With new batteries and thermal management, the Vision EQXX technology demonstrator achieved record ranges of more than 1,200 kilometres and consumption of 7.4 kilowatt hours per 100 kilometres. ‘This is the one-litre car of the electric era.’ Charging strategies have also been refined. ‘A range of 325 kilometres in ten minutes is currently a benchmark for a battery-electric vehicle in the new CLA,’ said Eder. The new vehicle architecture is optimised for battery-electric drive, but is also compatible with a hybrid version that combines a 1.5-litre engine with a 48-volt system and an 8-speed dual-clutch transmission. This should enable even the 48-volt hybrid car to drive up to 70 km/h purely on electric power. Mercedes opted for 800 volts as the on-board voltage. Customers can choose between high-performance nickel-manganese-cobalt (NMC) and cost-effective lithium iron phosphate (LFP) lithium batteries.

VW: Cars for China made in China

Volkswagen is focusing on software-defined vehicles. This new electronic architecture 'is a real cost advantage,' said **Kai Grünitz**, member of the Volkswagen brand board who is also responsible for technical development. The new architecture can be used for all vehicle classes, from the VW Polo to the Audi A8. It is expandable 'without having to redo everything.' The first vehicle of this type is scheduled to be launched in China in 2026, and in 2027 there will also be software-defined cars from Germany for the European market. 'We have been working for 18 months to two years on a car for less than 20,000 euros, from Germany for Europe.' A recipe for success in previous decades, the same car for all global markets, i.e. a global car like the Golf, is no longer feasible due to 'different regulations, but also because customer requirements are diverging.' In future, Volkswagen will develop cars for China in China and cars for Europe in Europe. Grünitz responded to the current confusing global situation with a quote from legendary Formula 1 driver Ayrton Senna: 'You can only overtake 15 cars in the rain.'

European car manufacturers have a lot of catching up to do in China. In the lucrative car market, where they enjoyed years of success, they have now been overtaken by local competitors. 'Local car manufacturers now account for more than 60 percent of the Chinese vehicle market, which is greater than the combined share of North American and European car manufacturers,' said **Markus Heyn**, Managing Director of Robert Bosch GmbH and Chairman of Bosch Mobility, Stuttgart. 'The pace of innovation in China is twice as fast as in Europe. In China, there is also a great willingness to embrace new ideas.' China has clear, strict targets for climate goals. There is openness to technology, and for every new technology, energy supply and infrastructure are considered 'in tandem,' says Heyn. 'We in Europe must learn from this.' This also applies to the commercial vehicle sector, where fuel cell trucks are set to play an important role. Bosch is on board as a supplier of fuel cells, which were developed in China in less than a year.

In Europe, on the other hand, there is a strong trend towards battery-electric drives, even for transit trucks. 'At MAN, 99 percent of our vehicles are still diesel-powered,' said **Frederik Zohm**, Executive Board Member for Research and Development at MAN Trucks & Bus, at the symposium. However, legislative pressure for emission-free drives is also increasing for commercial vehicles. The CO_2 emissions of MAN's current fleet alone exceed Austria's total CO_2 emissions per year. Overall, 'around 300,000 to 360,000 trucks are registered in Europe every year,' said Zohm. He believes MAN is on the right track towards decarbonisation. 'We are the market leader in Europe for battery-electric city buses.' For transit trucks, MAN offers battery packs of 480 kilowatt hours for ranges of 600 to 800 kilometres, and in future even more thanks to 750 kilowatt hours. With a charging capacity of 750 kilowatts, the truck can recharge enough power for 350 kilometres in 40 minutes. One current stumbling block at present is the high price of the components. 'A battery pack costs as much as a diesel engine. Six battery packs are installed in the truck for 480 kilowatt hours.' MAN is also focusing on hydrogen engines, which are considered emission-free in the EU, and biodiesel (HVO) for decarbonisation.

Horse Powertrain focuses on global cooperation

‘By 2040, there will be more than a billion vehicles on the road without battery-electric drives. Who will take care of overseeing their carbon footprint?’ asked **Matias Giannini**, Managing Director of Horse Powertrain. The new supplier multinational was founded as a joint venture between Geely, one of China's largest automotive groups, Renault and the Saudi Arabian oil company Aramco. Giannini warned against one-sided thinking. ‘In Brazil, 83 per cent of vehicles run on bioethanol, which results in lower emissions over the entire vehicle life cycle than electric cars, especially if they run on a lot of coal-fired electricity.’ In China, on the other hand, the boom in electric vehicles with range extenders is no coincidence. "This reduces costs by up to 20 per cent, which is very important in China. Smaller batteries with 30 kilowatt hours and less can save up to 1,500 euros and still guarantee the same range thanks to range extenders. With one litre of petrol, this range extender can deliver 20 kilometres of electric range, regardless of the charging network. This gives millions of Chinese people access to electric mobility that they previously could not afford.‘ Giannini called for international cooperation. ’Our planet doesn't need soloists, it needs an orchestra."

Todd Anderson, Vice President and Chief Technology Officer of US supplier Phinia, which emerged from the former major US supplier Delphi, among others, drew attention to the gap between CO_2 targets and reality despite significant progress in fuel efficiency and electrification. Since the 1980s, the European Union has succeeded in halving average CO_2 emissions to around four tonnes of CO_2 per capita. Globally, CO_2 emissions have stagnated at around four tonnes of CO_2 per capita since the 1960s. To replace fossil fuels, all available carbon-free energy sources will be needed, including solar, wind, water, nuclear and biomass. ‘There is no single energy source that will cover all needs,’ said Anderson. This presents a fuel system and component manufacturer such as Phinia with a host of new technical challenges in order to overcome the weaknesses of individual alternative fuels, for example in terms of cold starting, energy density, lubrication and corrosion.

The mammoth task of renewable energy supply

‘The decisive factor for all drive systems is the provision of renewable energy. This, in itself and in combination with the necessary infrastructure, represents a truly mammoth task that has not yet been fully thought through, let alone secured,’ said **Helmut Eichlseder**, Director of the Institute for Thermodynamics and Sustainable Drive Systems at Graz University of Technology, in his closing speech. Eichlseder would like to see European legislators focus on ‘effectiveness in terms of greenhouse gas relevance’ in future. Currently, only exhaust emissions are taken into account.

***Further information and photo material**: https://www.melzer-pr.com/motorensymposium*

Brief information on the International Vienna Motor Symposium:
The International Vienna Motor Symposium, initiated by Prof. Dr Hans Peter Lenz, was held for the first time in 1979 and has been organised by the ***Austrian Society of Automotive Engineers (ÖVK)*** *since 1985. Prof Dr Bernhard Geringer has headed the association since 2017. The ÖVK was founded in 1985 and has 750 full members. Its aim is to promote the meaningful application of automotive technology. Through scientific events, the ÖVK aims to increase and promote the knowledge level of experts in the automotive industry and associated target groups.*

Further information: https://wiener-motorensymposium.at/ and https://oevk.at/

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