

pepper and TWAICE form partnership for full battery transparency in retrofitted commercial vehicles

**Munich, 06 September 2021. pepper motion GmbH is the first manufacturer worldwide to offer innovative solutions for the electrification of used and new commercial vehicles. TWAICE's analytics software will make the battery performance and lifetime of electrified powertrains transparent and thus more sustainable. This provides pepper customers with unprecedented battery insights and enables optimal operation.**

### **Retrofitting as an economical and sustainable alternative to diesel vehicles**

Retrofitting is increasingly emerging as an economical and sustainable alternative to diesel vehicles. pepper is the leading manufacturer in this field and retrofits both buses and trucks with modern, all-electric powertrains. The recent change of name from e-troFIT GmbH to pepper motion GmbH is a clear signal from the company for an expanded product and solution portfolio and a consistent focus on international markets and growth. "We plan to put around 1,200 buses and trucks on the road with our technology by 2023 alone. The vehicles will be delivered primarily in Europe, North and South America," said Andreas Hager, Managing Director of pepper motion GmbH, of the short-term plans.

### **Shaping the future together**

TWAICE will support pepper and commercial fleet operators in both the development and operation of the electric vehicles. The battery analytics software allows the condition of vehicle batteries to be estimated and predicted in the field, long-term battery performance to be analyzed, maintenance to be predicted, warranty commitments to be adjusted, and a realistic residual value to be determined. It can also provide drivers with targeted usage recommendations. In this way, the TWAICE software makes the service life and economic efficiency of the vehicle batteries transparent.

"TWAICE is an important strategic technology partner for us. We can use the software not only to analyze the aging process of batteries, but also to derive value-linked different life cycles and usage scenarios that are valuable for our customers and our product development," explained Dr. Ing. Matthias Kerler, Chief Technology Officer of pepper motion GmbH. The analytics data from TWAICE provides pepper with conclusions to further optimize the cycle stability of the batteries used, and to ensure maximum energy-efficient and economical use. "The battery is the most cost-intensive part of an electric drive system and the one with the largest CO2 footprint. This makes it even more important for us to make this component usable for as long as possible in different life cycles. In this way, we are also fulfilling the most important part of our corporate mission to drive decarbonization forward quickly with sustainable mobility solutions and to keep the CO2 footprint as low as possible - to effectively counter

climate change and make a valuable contribution to our society and our planet," Andreas Hager concluded his remarks.

### **Technology as a lever for decarbonization**

The technology behind the TWAICE predictive analytics software comprises artificial intelligence to determine battery condition and predict the aging and performance of lithium-ion batteries. TWAICE's accurate predictions make even complex battery systems predictable and allow the lifecycle of the powertrain to be more reliable, efficient and (crucially) sustainable. "Mobility is undergoing a historic transformation, with more and more electric alternatives replacing traditional internal combustion engines. At the heart of deciding whether renewable energy and electric vehicles can be widely deployed in the future is the battery. This is where predictive battery analytics is groundbreaking, as it plays a key role in unlocking previously undiscovered potential along the entire value chain," said Dr. Stephan Rohr, co-CEO of TWAICE. "Our combined strengths literally give diesel vehicles a second life as zero-emission electric vehicles. The partnership with pepper creates innovative future solutions that take electromobility a decisive step further."

### **About TWAICE**

TWAICE provides predictive analytics software that optimizes the development and operation of lithium-ion batteries. TWAICE's core technology is the digital twin - a software that combines deep battery knowledge and artificial intelligence to determine the condition and predict the aging and performance of batteries. This makes complex battery systems more transparent, effective, and reliable. As the leading battery analytics software for global players in the mobility and energy sectors, TWAICE is committed to increasing the lifetime, efficiency and sustainability of the products that power the economy of tomorrow Find out more at [www.twaice.com](http://www.twaice.com).

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### **About pepper motion GmbH**

pepper - electrifying transportation! The German, privately financed company with headquarters in Denkendorf and offices in Garching near Munich employs around 75 people. pepper has additional sales and development locations in Austria, Italy, Poland and Bulgaria. As the first digital OEM worldwide (without own warehousing and manufacturing), pepper offers innovative solutions for the electrification (retrofitting) of used and new commercial vehicles such as trucks in distribution transport, buses in local public transport (LPT) and municipal vehicles.

pepper is ISO 9001 certified and is thus the only supplier of retrofitting solutions to guarantee operational safety in accordance with international automotive industry standards such as functional safety ISO 26262. An international partner network guarantees service and availability in Europe. With its holistic approach up to telematics, charging infrastructure, fleet management and autonomous driving, the company designs quickly implementable and cost-efficient solution packages for sustainable mobility change and a "second life" of existing commercial vehicles. They effectively support the implementation of CO2 reduction targets in accordance with the European Green Deal Agreement and the Clean Vehicles Directive, which will come into force in 2021.

pepper was awarded the German Mobility Prize (2018) and the Austrian VCÖ Mobility Prize (2019), as well as being selected as one of the top 50 startups in Europe in the field of mobility (2020, EUSP). Further information: [www.peppermotion.com](http://www.peppermotion.com).

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