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Press and IR Release

Schaeffler and VDL Groep to team up on self-driving shuttles

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- Schaeffler and VDL plan to jointly develop and produce a new generation of self-driving electric shuttles for public transport
- Mobileye to provide the shuttle vehicles with autonomous driving systems for SAE level 4
- First demonstrator and all relevant automotive electrification and steering technology will be showcased at IAA Mobility 2023 by Schaeffler (hall B3, booth B40) and VDL Groep (hall B3, booth B21)

Schaeffler and VDL Groep are jointly exploring the development and production of a new generation of self-driving shuttles for public transport. The two family-owned companies will be showcasing a first demonstrator as well as all relevant automotive electrification and steering technology at the IAA Mobility show in Munich. The initiators intend to bring together their technological competencies and expertise in systems engineering, development, production, and public transport. For this progressive and innovative mobility concept, Schaeffler and VDL Groep will cooperate with Mobileye who will provide the shuttle vehicles with autonomous driving systems. The two partners are currently in advanced negotiations with public transport authorities and operators to start pilot projects. According to the roadmap, testing for the vehicles on the streets will most likely be possible starting in 2025.

Partners for new mobility ecosystems

Around the globe, the concept of mobility is currently being reinvented. Many metropolitan areas are supplementing their mobility offering to alternative transport concepts to provide a mobility that is sustainable and easily accessible. Public transport operators are increasingly exploring autonomous driving solutions, allowing for increasing traffic volumes even considering a shortage of drivers. Especially in off-peak hours, larger vehicles would progressively be replaced by smaller, self-driving vehicles based on on-demand services that are a perfect solution for making public transport locally emission-free and low-noise. The self-driving shuttles can be ordered by consumers via an app, and are set to change public transport over the next several years. Demand for self-driving shuttle services is expected to take off in the coming years, especially in many major cities in Europe, North America, and parts of Asia by the end of this century.

The envisaged strategic cooperation between Schaeffler and VDL underlines the importance of getting involved in these developments at an early stage. Together, both companies aim to accelerate the development of shuttle vehicles that can be manufactured on a commercial scale.

Klaus Rosenfeld, CEO of Schaeffler AG, says: “Self-driving shuttle vehicles will become integral elements of modern mobility ecosystems. They will bring people safely, quickly, and easily from A to B and increase accessibility to mobility for everyone living in cities and rural areas. We at Schaeffler want to support this development with best-in class systems engineering as well as innovative automotive technology in a sustainable manner. This goal is best realized with strong partners. We are more than happy to team up with VDL Groep and Mobileye.”

Willem van der Leegte, President and CEO of VDL Groep says: “Autonomous shuttles are going to play an important role in our future mobility needs. This vehicle concept fits seamlessly into our broad mobility solution covering design, electrification, connectivity, autonomy, and services. Of course, this planned cooperation is also a fantastic opportunity to pioneer and innovate with our esteemed partners Schaeffler and Mobileye.”

Level 4: self-driving without driver

VDL Groep leads the way as an innovator in areas such as bus and car manufacturing and is the European frontrunner in the electrification of heavy duty vehicles. Schaeffler is a worldwide leading automotive supplier of systems and components for electrified powertrains as well as innovative steering systems. The company has introduced a so-called rolling chassis, which combines a fully electric powertrain, steer-by-wire system, and battery in a modular solution. The Mobileye Drive platform designed for shuttle vehicles enables autonomous driving using purpose-built EyeQ processors, redundant sensor systems of surround cameras, and lidar or radar sensing, as well as mapping solutions. Johann Jungwirth, Senior Vice President Autonomous Vehicles at Mobileye: “The full potential of autonomous mobility to transform our communities for the better can only be reached if the technologies are safe, accessible, and scalable. Working with Schaeffler and VDL Groep, we have the right strategy and teams to make mobility-as-a-service a reality in the very near future.”

Germany is planned to be the first country where the newly developed and manufactured shuttles will operate, benefitting from the fact of being the first country in Europe which approved SAE level 4 for use on public roads.

Industrialization: production volume depends on achievable sales
Schaeffler and VDL intend to develop and build the shuttles for public transport operators who will be operating the vehicles within a comprehensive ecosystem. The companies have already started negotiations with operators to acquire pilot projects with the intention to prove the concept and to set up a scalable ecosystem with open interfaces. The target production volumes will depend on achievable sales, but they are projected to produce some thousands of vehicles per year starting in 2030. Production is planned to take place at VDL's Mobility Innovation Centre in Born (Netherlands).

Schaeffler and VDL Groep autonomous shuttle specifications:

- Seats: nine seats (six seats fixed, three seats flexible)
- Payload: around 1,000 kg
- Dimensions: 5 metres long, 2.2 metres wide, 2.8 metres high, weighing about 5,000 kg
- Indoor monitoring system in direct contact to a control room
- Two deeply integrated independent sensing systems: one camera-based and one radar or lidar-based
- Large doors and low entry step, wheelchair accessible
- Maximum speed: 70 km/hour
- Range: over 350 km per day, and over 100 km on one battery charge

Visit Schaeffler at the 2023 IAA Mobility show in Munich: At this year's IAA Mobility show at the Munich Exhibition Center, Schaeffler is exhibiting a whole range of new technologies for sustainable, efficient and comfortable mobility. These include solutions for inner-city goods delivery using e-cargo bikes, a new type of steering system, high-efficiency electric and hydrogen drives, new mobility concepts, and more.

Schaeffler press conference: Monday, September 4, 2023, 11:00 a.m. to 11:20 a.m. (CEST): Klaus Rosenfeld, CEO of Schaeffler AG, and Matthias Zink, CEO Automotive Technologies at Schaeffler AG, will address the media at the Schaeffler showcase at Booth B40 in Hall B3 and online via live stream.

Schaeffler at the IAA Conference:

- **Wednesday, September 6, 2023, from 4:00 p.m. to 4:45 p.m.**, Main Stage, Hall A1. Session: "Towards a Sustainable Automotive Value Chain – Ambitions, Challenges & Collaboration." Speakers include Matthias Zink, CEO Automotive Technologies, Schaeffler AG.

- **Thursday, September 7, 2023, from 3:00 p.m. to 3:45 p.m.**, Visionary Clubhouse, Hall A2. Session: "Here to innovate: revolution needs cooperation! Disruptive thinking, new technologies, new vehicle concepts – partnerships as enablers for innovation and change". Speakers include Ralf Busse, mocci | CIP MOBILITY GmbH; Kersten Heineke, McKinsey Center for Future Mobility; Dennis Müller, Enchilada Franchise AG; and Claus-Dieter Schilling, Schaeffler.

Schaeffler and mocci are also teaming up for the **IAA Experience** at the IAA Summit in Hall A3. There, on the Cycling & Micromobility Course, visitors will be able to test-ride mocci e-cargo bikes featuring drive technology by Schaeffler. The IAA Experience is open from 9:00 a.m. to 6:00 p.m. daily from September 4 to 8.

Forward-looking statements and projections
Certain statements in this press release are forward-looking statements. By their nature, forward-looking statements involve a number of risks, uncertainties and assumptions that could cause actual results or events to differ materially from those expressed or implied by the forward-looking statements. These risks, uncertainties and assumptions could adversely affect the outcome and financial consequences of the plans and events described herein. No one undertakes any obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. You should not place any undue reliance on forward-looking statements which speak only as of the date of this press release. Statements contained in this press release regarding past trends or events should not be taken as representation that such trends or events will continue in the future. The cautionary statements set out above should be considered in connection with any subsequent written or oral forward-looking statements that Schaeffler, or persons acting on its behalf, may issue.

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Schaeffler Group – We pioneer motion: The Schaeffler Group has been driving forward groundbreaking inventions and developments in the field of motion technology for 80 years. With innovative technologies, products, and services for electric mobility, chassis solutions, and renewable energies, the company is a reliable partner for making motion more efficient, intelligent, and sustainable – over the entire life cycle. Schaeffler describes its comprehensive range of products and services by means of eight product families: from bearing solutions and all types of linear guidance systems through to repair and monitoring services. With around 110,000 employees and more than 250 locations in 55 countries, Schaeffler is one of the world's largest family-owned companies and ranks among Germany's most innovative companies.

Impression of the autonomous driving shuttle vehicle that Schaeffler and VDL Groep plan to develop and produce together. Photo: VDL Groep, Schaeffler

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Schaefflers 3in1 electric axle combines the electric motor, gearbox, and power electronics in a comprehensive and compact system. Photo: Schaeffler (SevenM)

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Schaeffler is developing key components for steer-by-wire systems, such as road wheel actuators. Photo: Schaeffler (SevenM)

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