



PRESSE-INFORMATION
PRESS RELEASE

Seite 1/5, 4. Januar 2023

ZF announces partnership with mobility provider Beep to bring new-generation autonomous Level 4 shuttle to U.S. market

- New shuttle generation celebrates world premiere at CES 2023
- ZF and Beep sign agreement to potentially supply several thousand new-generation autonomous Level 4 shuttles
- ZF offers comprehensive shuttle services with its autonomous transport system (ATS), including fleet management, maintenance, repair, and training

Friedrichshafen / Las Vegas. ZF unveils its next generation shuttle for autonomous driving in urban environments and mixed traffic at the 2023 Consumer Electronics Show (CES) in Las Vegas/ Nevada, USA. The next generation complements the established model, which is primarily designed for use in segregated lanes. For the new shuttle generation ZF announces a strategic partnership with U.S. mobility services provider Beep, Inc. The agreement aims to deliver several thousand shuttles to customers over the coming years, combining ZF's ATS with Beep's mobility services and service management platform into a single-source autonomous mobility solution.

"In order to reduce traffic-related emissions in metropolitan areas, a reduction in motorized individual transport and a simultaneous expansion of more sustainable, efficient, comfortable, and affordable mobility options are required," says Torsten Gollewski, Executive Vice President, Autonomous Mobility Systems at ZF.

With its Autonomous Transport Systems, ZF is driving a mobility transformation, while offering a solution to the serious driver shortage in local public transport. As further proof of its progress on the road to "Next Generation Mobility NOW", ZF is presenting a new, autonomous Level 4 Shuttle. The new shuttle complements the already established autonomous shuttle model. In the near future, ZF can offer two shuttle



PRESSE-INFORMATION
PRESS RELEASE

Seite 2/5, 4. Januar 2023

types – one primarily for use in segregated lanes and the new model, which will be used primarily in urban environments and in mixed traffic.

Unlock Mobility: New Shuttle Generation celebrates World Premiere

The new shuttle is equipped with state-of-the-art sensor technology consisting of lidar, radar, camera, and audio systems that provide precise environmental detection. This is complemented by other technology such as the ZF ProConnect connectivity platform, which enables communication with the infrastructure and the cloud, as well as the ZF ProAI supercomputer, where data converge.

The Virtual Driver – ZF's AD software – processes these expansive volumes of information, derives safe driving strategies using artificial intelligence, and passes them on as input to the on-board actuators. The Virtual Driver replaces the human driver and thus makes the steering wheel and brake pedal superfluous. The system is designed with redundancies so that the full functionality and operability of the vehicles are highly reliable. Thus, ProConnect and ProAI units in the shuttle work together to operate the ZF Virtual Driver. All ZF components and systems are Automotive Grade certified, meeting both the high safety and quality requirements of the automotive industry and applicable cyber security standards.

Focus on flexibility

With selectable battery capacities between 50 and 100 kWh, the next-generation shuttle can cover up to 80 miles in pure electric mode – at a maximum speed of initially 25 mph, in further development of 50 mph. The Shuttle offers a total passenger capacity of 22 with up to 15 seated. The vehicle conforms to requirements of the Americans with Disabilities Act and includes an automatic ramp and wheelchair restraints. The interior is customizable in layout and trim level. With front- and rear-wheel steer and kneeling functions, distance to the sidewalk is reduced to a minimum when approaching a stop. This enables the shuttle to dock precisely and provide barrier-free boarding and disembarking.



PRESSE-INFORMATION
PRESS RELEASE

Seite 3/5, 4. Januar 2023

Autonomous, emission-free ZF Shuttles can operate on defined routes 24 hours a day, 7 days a week. Public transport operators can provide passengers with a mobility service even when demand is low and expand routes to meet increased demand despite an acute shortage of drivers.

New partnership with Beep – ZF industrializes shuttle business

With the US mobility provider Beep, ZF has already established a partnership for its new shuttle generation: ZF and Beep have signed an agreement to bring the shuttle to market in the United States.

Headquartered in Lake Nona, Florida, Beep delivers the next generation of shared mobility services. Specializing in planning, deploying and managing advanced autonomous shuttles for both private and public communities, Beep safely connects people, places and services in first-mile, last-mile mobility networks across the United States. The company has been safely testing autonomous shuttles for more than three years, with more than 100,000 road hours, and operates the largest and longest-tenured private-sector autonomous mobility network in the U.S. in Lake Nona, Florida.

"We are excited to partner with ZF to bring their next shuttle generation to market in the United States," said Joe Moye, Chief Executive Officer for Beep. "ZF's full suite of shuttle services, its U.S. partner network and its automotive-grade vehicle complement our turnkey mobility networks and autonomous services technology platform. This shuttle will allow us to continue to pursue our vision of extending mobility equity and reducing carbon emissions, expanding our use cases while meeting industrial requirements for vehicle service life, performance and safety."

Beep is evaluating a number of possible sites and routes with both new and existing customers. "Our offer of clean, efficient and affordable mobility is convincing, and has found a partner and major customer in Beep", says Torsten Gollewski.

ZF is a full-range supplier for autonomous transport systems



PRESSE-INFORMATION
PRESS RELEASE

Seite 4/5, 4. Januar 2023

As a technology leader, ZF sees itself not only as a shuttle supplier, but also as a partner for the entire life cycle of its shuttles. Therefore, the partnership also includes comprehensive service maintenance to ensure smooth operation to help maximize uptime of the shuttles.

"For service, customers can rely on ZF's global network with 20,000 workshop partners worldwide. In North America alone, we have 3,000 workshop partners, so support of our customers is always a priority", emphasizes Marco Neubold, Vice President Industrial Aftermarket and Autonomous Mobility at ZF.

Additionally, ZF's Mobility Solutions subsidiary provides a complete ecosystem for autonomous transport systems: Starting with individual consulting, planning of driving routes and the shuttles utilized to consulting on the required infrastructure, as well as charging and fleet management. These services can be smoothly integrated into existing systems and help enhance operational efficiency.

With ZF's rollout of autonomous shuttle systems, the Group is taking a leading role in the future development of public transport. "This is true to our strategy of bringing autonomous driving at Level 4 into operational use first with commercial vehicles and shuttles. Autonomous transport systems are no longer a vision. We are starting with the implementation ", Torsten Gollewski emphasizes.

Captions:

- 1) Unlock Mobility: With its next shuttle generation, ZF presents a new, autonomous Level 4 vehicle for mixed traffic.
- 2) Flexibility in all areas: From the choice of different battery capacities, to the distribution of seating and standing room, to the materials and fabrics used, customers can customize their shuttles.
- 3) State-of-the-art technology, graceful design: ZF shows the next shuttle generation at CES 2023.



PRESSE-INFORMATION
PRESS RELEASE

Seite 5/5, 4. Januar 2023

- 4) Joe Moye, Beep, (left) and Josef Waldbauer, ZF, sign the strategic partnership in the presence of Kevin Reid, Hinrich Woebcken, Dr. Holger Klein and Torsten Gollewski.

Credit: ZF

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About ZF

ZF is a global technology company supplying systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains of Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive product and software solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies a wide range of vehicle types. With its products, the company contributes to reducing emissions, protecting the climate and enhancing safe mobility.

With some 157,500 employees worldwide, ZF reported sales of €38.3 billion in fiscal 2021. The company operates 188 production locations in 31 countries.

For further press information and photos, please visit: www.zf.com