

ZF LIFETEC Technology Day 2024

Future vehicle interiors: ZF LIFETEC presents next generation airbags and steering wheels

- **Extended design options for new vehicle interiors by steering wheels with new driver airbag configurations**
- **Enhanced occupant protection for side impacts with dual-stage side airbag**
- **Active seat belts for enhanced driving safety**
- **Market for passive safety systems expected to grow by approximately 4% annually until 2030**

Alfdorf / Penzing, Germany. ZF LIFETEC, one of the world's leading suppliers of passive safety systems, presented its latest steering wheel, airbag and seat belt technologies at its first Technology Day under the new brand. The ZF LIFETEC brand had been introduced in March 2024 for the ZF Passive Safety Systems division, which is currently being set up as a standalone company independent from ZF Group. With a global market share of more than 20 percent, ZF LIFETEC can be found in the vehicles of almost all leading vehicle manufacturers.

"The need for safer mobility is universal. Therefore, the share of safety features in new passenger cars is expected to increase significantly – in both electric and combustion vehicles. Demand is driven by increasing global safety regulations and automotive megatrends," said Rudolf Stark, head of ZF LIFETEC. "Our aim is to outgrow the market – and our technology driven approach combined with leading innovations are an excellent base for that. Once the carve-out is completed, the independence as a standalone business provides us with greater entrepreneurial flexibility to address the needs of our customers."

Automated driving, drivetrain electrification and smart interior are considered main drivers of change in the automotive industry. A high level of automated driving provides more in-car freedoms such as the ability to adjust seats to comfort positions while the vehicle is in motion. These features present considerable challenges for future occupant protection systems as well as business opportunities for ZF LIFETEC. While new interior concepts are changing the requirements for occupant protection, new passive safety systems are also opening up innovative design opportunities for vehicle manufacturers.

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The following highlights were among the solutions presented at the ZF LIFETEC Technology Day 2024:

- A steering wheel with a pioneering seamless design, allowing customization and enhanced user experience.
- A driver airbag that deploys from the top of the steering wheel instead of in the frontal surface. This frees up the space in the steering wheel previously occupied by the airbag for new functions.
- A driver airbag solution (dual contour bag) designed to protect the driver in normal driving or in comfort seating position.
- An internal side airbag that can be deployed shortly before a side impact and creates an additional crumple zone between the side door and driver in two stages, thus reducing the risk of injury.

Global passive safety market providing for structural growth

With its leading innovations across a full portfolio of airbag, seat belt and steering wheel systems, ZF LIFETEC is well positioned to serve the demands of a growing market for passive safety systems. Based on a leading consultancy study, with a total market size of about €19 billion in 2023, the market is expected to grow at a compound annual growth rate (CAGR) of approximately 4% until 2030. Increasing safety demands and stepped-up safety regulations – especially in emerging markets with particularly strong vehicle production volume growth such as China and India – as well as innovations to support mobility megatrends, represent the key drivers for outperforming the underlying light vehicle market growth. At the same time the market for passive safety systems is non-disruptive: The demand for safety comes independent from the drivetrain although the safety requirements have been increasing with respect to the higher weight of electric vehicles.

ZF LIFETEC – the future standalone group in short

ZF Group initiated the carve-out of its Passive Safety Systems division to provide it with more strategic flexibility to enable higher growth in sales and profitability. With the new brand, ZF LIFETEC continues its journey towards a standalone group, leveraging the robust position in a structural growth market less affected by automotive industry shifts.

With sales of approximately €4.6 billion¹ in 2023, ZF LIFETEC is a leading global supplier of passive safety technology for the enhanced protection of vehicle occupants with a market share of more than 20 percent of global sales in its core product categories as of 2023. ZF LIFETEC has a global presence of 48 locations across 20 countries with around 36.000 employees, thereof around 3,400 in R&D. ZF LIFETEC's global R&D network focuses on three global R&D centres-of-excellence in Germany, the US and China, to drive global product

¹ Combined Financial Statements for ZF LIFETEC. Deviates from ZF Friedrichshafen AG report 2023 as adjustments were made to present ZF LIFETEC as a stand-alone entity.

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portfolio development, and numerous local support facilities enabling close relationship with leading OEMs for product customization to regional market trends and regulatory changes.

The comprehensive ZF LIFETEC product system covers three main product categories: inflatable restraint systems is the largest product category providing customers with a full suite of airbags and inflators to meet and exceed global safety standards and enable innovative interior designs. Steering wheel systems add integrated solutions to combine airbag technology with the usability of modern cars. Seat belt systems provide the full suite of restraint solutions with focus on increasing adaptability to the individual needs of passengers. Based on strong relationships with a diversified customer base of global OEMs, ZF LIFETEC products are essential pillars of safety from small vehicles in the volume segment to the most sophisticated luxury vehicles.

Captions:

- 1) *Rudolf Stark, head of ZF LIFETEC.*
- 2) *The innovative positioning of the driver's airbag behind the steering wheel enables pioneering design options for the steering wheel and its controls. The horizontal spoke, including the hub, can thus be given a seamless, smartphone-like design.*
- 3) *The Pre-Crash Dual Stage Side Airbag pushes the occupant toward the center of the vehicle before a side impact, increasing the crumple zone.*
- 4) *The dual contour driver airbag can deploy in two different sizes, depending on the driver's seating position and size.*
- 5) *The active seat belt tensioners of the ACR8 series can be reversibly tensioned with their electric motor and also with a conventional pyrotechnic ignition in the event of a crash.*

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About ZF LIFETEC

ZF LIFETEC is a leading passive safety technology provider for enhanced protection of vehicle occupants. Employing around 36,000 employees dedicated to the mission of saving lives with a technology driven approach, the company develops and

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manufactures a comprehensive product portfolio including airbag, seat belt and steering wheel systems, covering a wide range from small vehicles in the volume segment up to sophisticated luxury vehicles. Featuring a market share exceeding 20 percent in its core product categories, ZF LIFETEC has a worldwide presence at 48 locations across 20 countries. In the fiscal year 2023, the Group generated sales of EUR 4.6 billion. Based on its strong relationships with a diversified customer base of global OEMs, driven by outstanding quality, long-standing R&D collaborations besides a strong global innovation platform, ZF LIFETEC is well positioned for future growth opportunities arising from the automotive megatrends electrification, (semi-) automated driving, smart interior, as well as increasing safety demands and stepped-up safety regulations worldwide. Learn more at zf-lifetec.com