ZF Presents Networked Vehicle Platform for the Rinspeed “Oasis”

- “Intelligent Rolling Chassis” (IRC) from ZF offers highly flexible platform for urban electric vehicles
- IRC installed for the first time in the “Oasis”
- HMI functions can help expand steering wheel and occupant safety system operation during automated driving

At the 2017 CES the Rinspeed Oasis, a visionary electric concept vehicle, will feature a number of technologies from ZF, most notably the world debut of its “Intelligent Rolling Chassis” (IRC).

The IRC is designed for urban passenger and transport vehicles and features zero emissions thanks to its all electric drive based on the electric twist beam rear axle. The aluminum electric motors at the rear axle are integrated with a single speed transmission that enables the Oasis to accelerate to 100 km/h in roughly nine seconds and, if needed, up to a speed of 150 km/h.

Agility for the city
Thanks to the integration of ZF’s innovative Electric Twist Beam (eTB) and electro-mechanical steering systems in combination with an innovative dual control arm independent suspension design on the front axle, the Oasis is incredibly agile. It boasts a turning radius of up to 75 degrees versus a typical turning radius of 50 degrees, making it an ideal vehicle for crowded cities where parking is at a premium.

ZF technology enables this highly responsive vehicle control by networking the chassis actuation systems using a powerful electronic control unit (ECU) housed within the IRC system. This unit can receive signals from multiple vehicle control systems – yielding advanced maneuverability for piloted or automated driving.
Reinventing the steering wheel
Automated driving is advanced by new Human Machine Interface (HMI) solutions and can present unique challenges for helping to protect passengers. ZF technology is also prominent here in the form of its unique single spoke steering wheel with touch sensitive or gesture controls that replace traditional buttons and knobs.

The wheel rim itself is equipped with Hands ON/OFF Detection. Ten capacitive sensor fields can immediately detect whether, where and how the driver is touching the wheel, an important feature for safe automated driving. In addition, the sensor fields can be assigned diverse commands with corresponding triggering gestures such as turn signal indication or actuating the horn and infotainment systems.

The high tech wheel is also foldable – when automated mode is engaged this space can be converted as a tabletop for a tablet, PC or a keyboard that can be snapped into place. Of course the steering wheel can be quickly unfolded when moving back to manual mode, and the driver’s airbag, no longer housed in the steering wheel, is installed in the headliner above the front windshield – known as a bag-in-roof design. Further enhancements to the interior include a unique seatbelt system integrating active seat belt technologies and anchor plate configuration enabling a “relax mode” when operating autonomously.

Captions:
1-3) ZF’s Intelligent Rolling Chassis (IRC) combines an axle-integrated electric drive with an extremely agile chassis and a flat vehicle floor.

4) The Rinspeed Oasis is the first vehicle to be built on the Intelligent Rolling Chassis platform from ZF.

5) A single-spoke steering wheel concept with integrated Hands ON/OFF Detection (HOD) makes it possible to activate freely definable functions by touching or swiping
the steering wheel rim instead of pressing buttons or turning knobs.

6-7) In the Rinspeed Oasis, the ZF steering wheel can fold down and snap in place during automated driving mode. It can be converted into a table, tablet or cup holder.

8) Seatbelt with Relax mode. The Active Buckle Lifter and anchor plate lift up in automated driving mode which gives the passengers more freedom of movement while still providing occupant protection.

Photos: ZF / Rinspeed

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ZF is a global leader in driveline and chassis technology as well as active and passive safety technology. The company acquired TRW Automotive on May 15, 2015, which was then integrated within the organization as the Active & Passive Safety Technology Division. The combined company reported sales of €29.2 billion in 2015 and now has a global workforce of around 135,000 with approximately 230 locations in some 40 countries. ZF annually invests approximately five percent of its sales in Research & Development (€1.4 billion in 2015) ensuring continued success through the design and engineering of innovative technologies. ZF is one of the largest automotive suppliers worldwide.

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