



More range: ZF Heat Belt can help improve energy efficiency of electric vehicles in cold weather

- New seat belt is designed to provide uniform warmth close to the body
- Enhanced comfort with no compromise in performance
- Reducing power to heat the vehicle may increase range for e-vehicles when compared to other climate control systems

Alfdorf, Germany. ZF has developed a heated seat belt option for electric vehicles. This technology allows drivers to reduce the energy used to heat the vehicle – especially in combination with other contact heaters such as a seat heater. During cold weather, the system may increase range by up to 15 percent by reducing the energy required to heat the interior of the vehicle. The ZF heated seat belt is based on a special webbing with integrated heating conductors that minimally increase the thickness of the webbing. This makes integration easier for vehicle manufacturers and offers occupants the same comfort as normal seat belt webbing. The heated belt is designed to provide occupants with a uniform feeling of warmth close to the body.

With this integrated heating function, ZF's new heated seat belt can provide close-to-body warmth immediately after the driver starts driving, typically between 36 and 40 degrees Celsius. In combination with heated seats, the heated seat belt has the potential to provide occupant comfort quickly. In electric vehicles, the climate control system is powered by battery current, as there is no usable waste heat as with the combustion engine. Reducing the amount of battery current used to heat the interior of the vehicle may enable a range gain of up to 15 percent using contact heaters and reducing the usage of conventional climate control systems.

Other advantages of ZF's heated seat belt are decisive for its broad acceptance among drivers and passengers: It behaves like a conventional seat belt, and its operation is also identical.



PRESSE-INFORMATION
PRESS RELEASE

Page 2/3, January 5, 2023

Slim and safe

ZF used a special textile processing method for this innovation. The heating conductors are woven into the seat belt structure. The contact elements for the electrical heating circuits are positioned in such a way that they do not interfere with belt operation or retraction. Special belt retractors at other installation positions are not necessary. Since all relevant characteristics of the seat belt remain the same, there are not any added procedures or qualifications for the OEM. The heated seat belt is in no way inferior to its conventional counterparts in terms of occupant protection.

Important indirect safety

Occupant experience and safety potential are generally enhanced by reducing bulky clothing. This allows the belt to lie much closer to the body while continuing to restrain and protect the occupant in a crash.

Captions:

- 1) Comfortable warmth close to the body through the belt: Drivers of e-vehicles will soon be able to benefit from comfortable climate control and possible improved range thanks to ZF's heated seat belt.
- 2) Special weaving technology: In ZF's heated seat belt, heating conductors are woven into the textile belt structure. As a result, handling from the occupant's point of view, as well as installation for car manufacturers, are identical to conventional belts.

Images: ZF

Press contact:

Mirko Gutemann, Automotive Software and Safety Systems



PRESSE-INFORMATION
PRESS RELEASE

Page 3/3, January 5, 2023

Phone: +49 7541 77-960136, email: mirko.gutemann@zf.com

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