

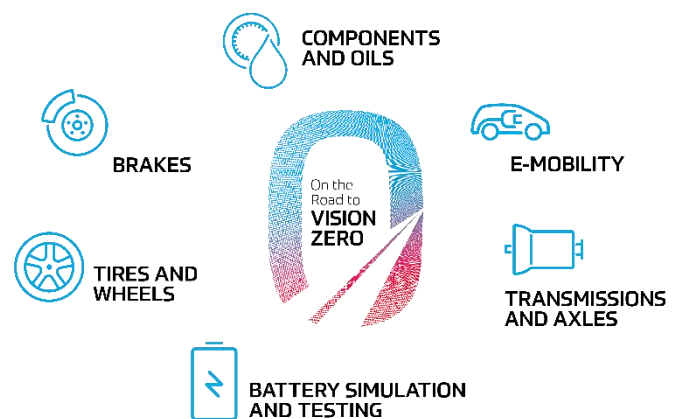


ZF Test Systems

ZF Test Systems develops, produces and retrofits test systems for on- and off-road mobility. As specialists for validation and development test facilities, we improve the quality of driveline, active chassis, tires and wheels as well as brakes and thus contribute to enhanced safety and comfort for the driver. Besides that, we offer DC power electronics based on SiC for simulating and testing batteries.

For us, there is no conflict between well-proven technology and innovative solutions. Rather these are the recipe for a reliable, customized test bench technology exactly tailored to the customer's specific requirements. We see ourselves as a complete system supplier and problem solver; with the experience and creativity of our employees we understand the customer's needs and requirements and find the ideal solution together.

Driven by the force and competence of a globally active engineering group, we are developing solutions for future mobility and are prepared for the forthcoming requirements like autonomous driving and E-mobility. We recognize sustainable trends early and are providing our customers with solutions to secure competitiveness also in the future.



**Future Mobility.
Tested Now.**



ESYS – battery simulation and testing

ESYS can simulate a wide variety of battery models in a highly dynamic manner at different voltage levels – from a simple internal resistance model to complex R-L-C models. This makes our battery simulator an important component of e-mobility test benches.

In the field of battery testing, we can offer a broad portfolio covering all battery types – from cell, module to pack. ESYS can also be used for tests of power electronics, Supercaps or even for fuel cell tests.

ESYS provides a wide power, current and voltage range (2 kW ... 1 MW / 8 V ... 1500 V / 100 A ... 1600 A) with a dynamic power of >1 MW/ms. The power ratings can be further increased by parallel connection. Our DC power electronics are based on SiC and thus increase the efficiency of ESYS.

Additional measurement ranges for current and voltage provide more flexibility and accuracy.



- Regenerative DC voltage sources
- Compact design
- Flexible design with Inverter/ DCU setup
- Ripple simulation 0.01 Hz to 15 kHz
- Turn-key battery testing solutions
 - Cell, module, and pack Testing
 - Lifecycle & Endurance Testing
 - Vibration Testing
 - Abuse Testing

ZF Test Systems – Equipment for Battery Simulation and Testing

Battery simulation

30 kW up to 1.000 kW
power rating



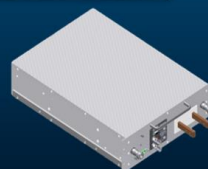
Compact design and high power capability



Ready for future with max. **1500 VDC**



Used also for Battery Testing in high power class



Battery and fuel cell testing

Pack, Module and Cell Tester
2,5 kW to 1.000 kW



Dynamic **performance**



Range **flexibility** with **modular design**



Ready for future with max. **1500 VDC**

