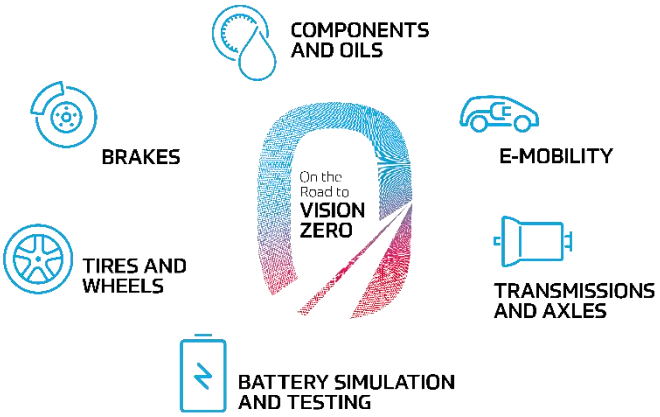
ZF Test Systems

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 rig 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.

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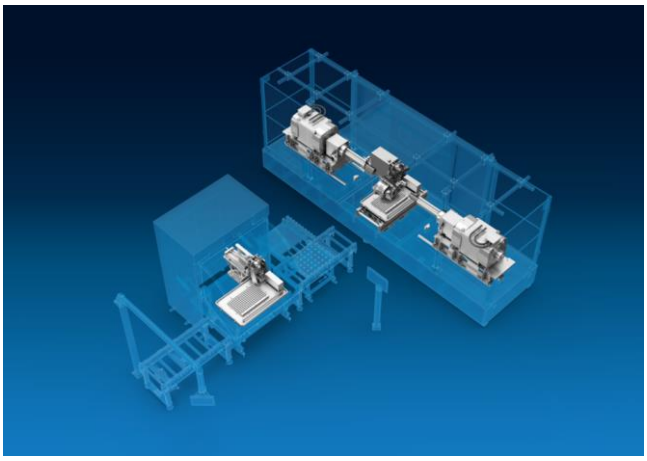
Production Test Bench for electric drives by ZF Test Systems



The newly developed production test bench for e-mobility applications for series production allows complete electric drive axles to be tested – for prototype construction as well as high-volume requirements.

The core component of the modular test bench is fully automated functional testing based on a customer-specific test procedure with efficiency and acoustics measurements by, inter alia, applying currents of up to 600 A.

Upgrading the test bench from a manual to a semi-automated or fully automated process is possible.

Upstreamed to the functional test, a high-voltage test is carried out with voltages of up to 2150 VDC. The isolated set-up enables thereby secure insulation testing and dielectric withstand testing.

With optional flash stations type-specific software versions can be written on the traction drives. Besides special test software, customer-specific software packages, such as immobilizer and the like, can also be flashed after a successful high-voltage and function test.

All stations work independently and can therefore be operated in parallel or sequential mode.

Test Contents:

- Acoustics: structure-borne noise/air-borne noise
- Efficiency
- Load jumps
- Max. operating points and functions (e.g. parking lock and oil pump)
- Peak power
- WLTP
- Insulation resistance and withstand voltage
- Allows testing of e-drives with both asynchronous state machines (ASM) and permanent-magnet synchronous machines (PSM)

Features/Core Messages

Model	eDrive test bench of the 3rd generation
Output per test bench	cycle time from 90 seconds
Power	power: 2x100 kW / total torque 2x 5000 Nm
Global standard production concept	modular, upgradable, parallel operation of several test benches incl. fully automated feeding/transfer systems
Flexibility	easily upgradable for future testing tasks, can be embedded in complex test units incl. flash, high-voltage and leak testing stations, among others