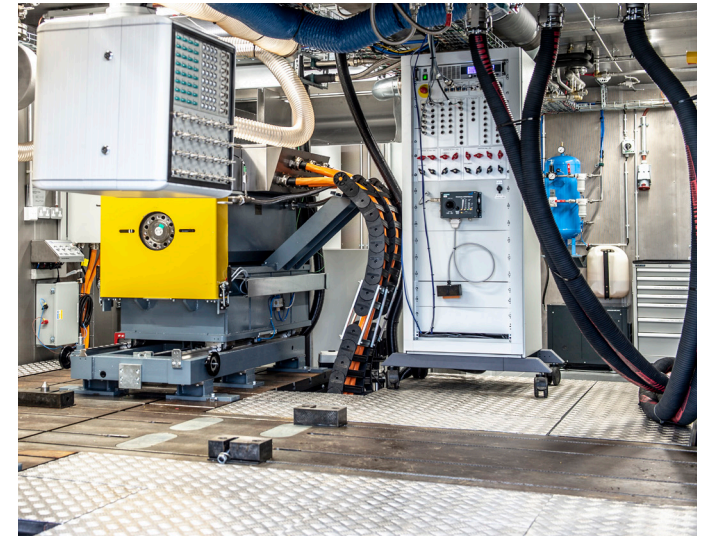


High-Performance 2WD Powertrain Test System

This facility is ideally suited for testing high-performance engines and complex hybrid powertrains. It has two hub-mounted, high dynamic dynamometers and a 300kW battery simulator. It is self-contained and totally secure with its own control room.

Applications

- Powertrain-in-the-loop (PIL) simulation and test capability
- IC or hybrid emissions development, including simulation of real world and regulated cycles
- Test of powertrain with a virtual battery using the battery simulator
- EDU and e-axle functional development and durability
- Powertrain control strategy development
- Hardware integration testing
- Development of low maturity hardware using Hardware in the loop simulation (HIL)
- Engine and transmissions thermal studies
- Development of traction control systems using fully integrated tyre slip models
- Mule use of components to simulate future vehicles
- Condensed testing on a rig compared to track or road-based testing
- Highly repeatable measurement of fuel consumption, emissions and energy consumption



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High-Performance 2WD Powertrain Test System

Facility Specifications

- System nominal power absorption 700kW
- Dyno inertia 0.84 kgm²
- 2x ultra-dynamic synchronous motors; 350kW, 3,500Nm (+20% overload)
Maximum speed 3,000 min⁻¹
- Dynamic torque changes performed at minimum 0.13ms
- 300kW Battery Simulator (1,000V/600A)
- ETAS Inca ECU calibration tools with iLinkRT real-time interface
- Modelling and Simulation realised through Mathworks and dSPACE software integration
- Cell and engine intake air control between 20°C to 35°C +/- 2°C
- Engine coolant control to +/- 1°C
- Test bench intercooler temperature control to +/-1°C
- AVL Fuel Exact measurement with temperature conditioning
- Measurement of 70 temperatures and 32 pressures
- Additional analogue and digital input/output channels available

