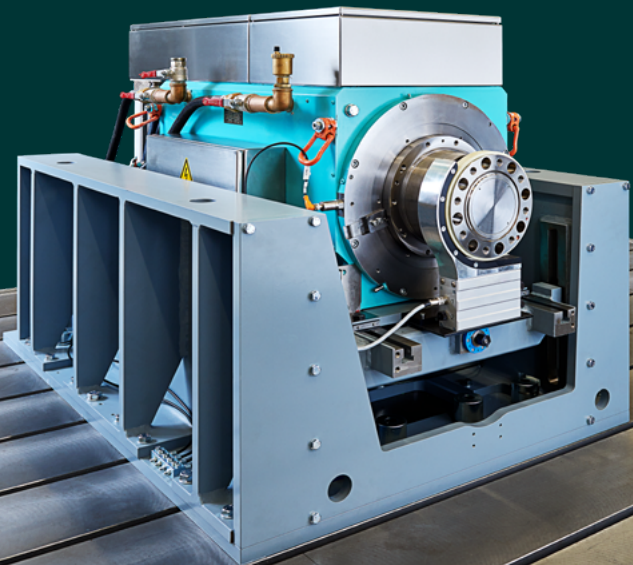


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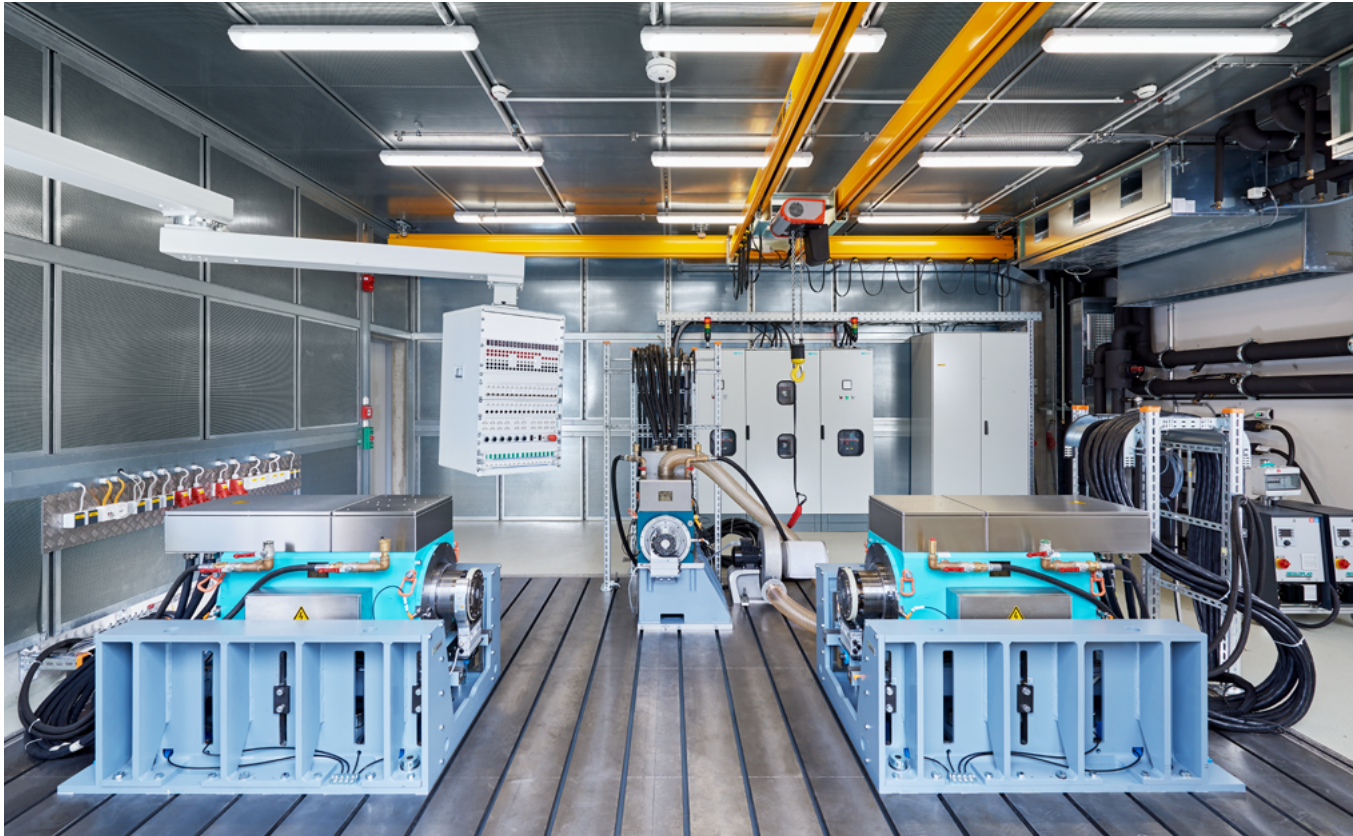
RESEARCH IN MOTION.

# High-Performance Electric Powertrain Test Bench

Mechatronics Lab



**FKFS.de**



High-Performance Electric Powertrain Test Bench

## The Test Bench

The test bench enables the testing of complete powertrains or individual components (e.g. eDrives or gearboxes) from electric vehicles.

The driving resistances are simulated by two highly dynamic eDrives. The input is provided either by the drive of the device under test (DUT) or a dynamic eDrive of the test bench.

A highly dynamic high-voltage battery simulator is used to supply the DUT with electrical energy.

A comprehensive range of test bench equipment is available for operating and analysing modern drivetrains.

Test bench equipment:

- Hardware-in-the-loop simulation environment
- Common tools for remaining bus simulation, diagnosis and application
- Comprehensive range of measurement technology (mechanical, electrical including high-voltage, hydraulic, thermal)
- Conditioning and media supply
- Test cell cooling
- High-resolution vibration measurement technology
- Early damage detection system
- Operational balancing device

## Technical Properties

### Input eDrive

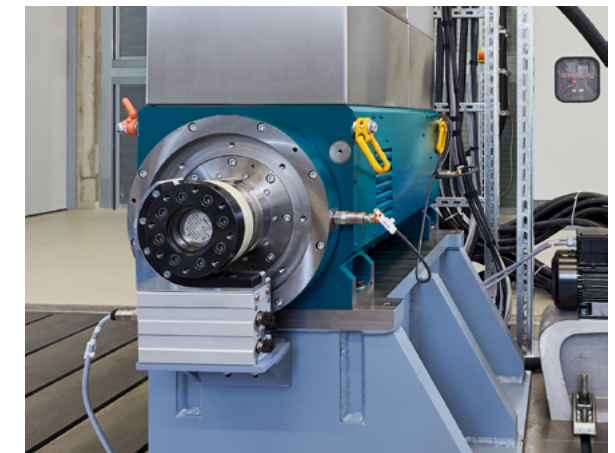
Power, max.	700 kW
Torque, max.	1.000 Nm
Speed, max.	20.000 1/min
Dynamic	69.000 1/min/s

### Output eDrives (2x)

Power, max.	720 kW
Torque, max.	6.000 Nm
Speed, max.	3.000 1/min
Dynamic	37.000 1/min/s

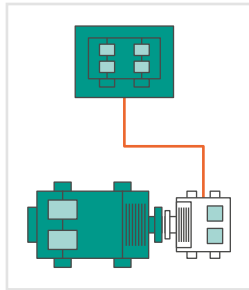
### Battery simulator

Power, max.	1.160 kW
Voltage range	0...1.000 V
Current, max.	1.600 A
Dynamic	2.000 V/ms

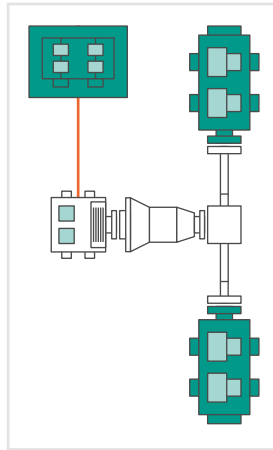


Input eDrive

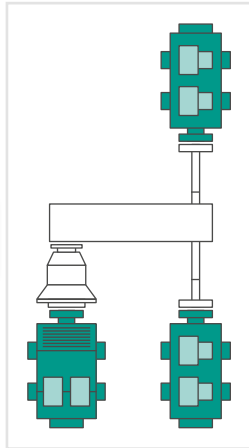
## Testing Options



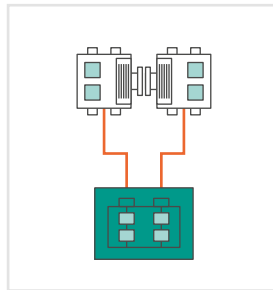
eDrive testing



ePowertrain testing



Drivetrain testing



Back-to-back testing

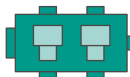
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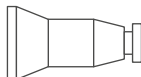
Battery simulator



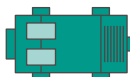
eDrive



Output eDrive



Gearbox



Input eDrive

■ Test bench  
□ Device under test

## Range of Services



High-speed adaptations

- Initial commissioning
- Efficiency measurements (mechanical and electrical)
- Testing of **durability, application and function**
- Investigation of **dynamic** behavior as well as **thermal** and **vibrational** effects
- **Hardware-in-the-loop** testing
- Wide range of **special tests**

We are happy to overtake the design, construction and production of individual test item adaptations.



## Contact



FKFS is an advanced engineering service provider of the international automotive industry and an independent research institution at the same time.

As an innovative partner, we offer our customers a wide range of services, from answering the most diverse questions to highly specialized custom solutions. In doing so, we benefit from our numerous test benches, our measuring, testing and simulation methods and our competent staff with excellent know-how.

### Automotive Mechatronics 4 Mechatronics Lab

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