

**FKFS**

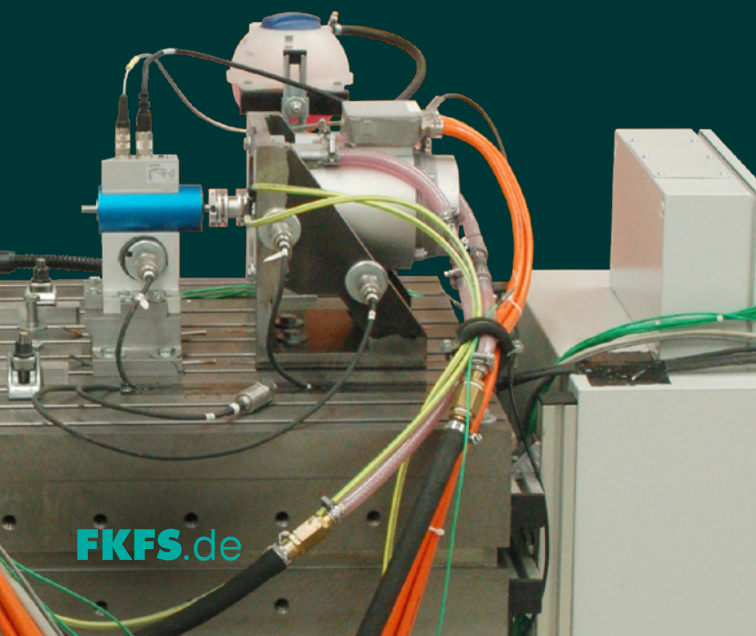
RESEARCH IN MOTION.

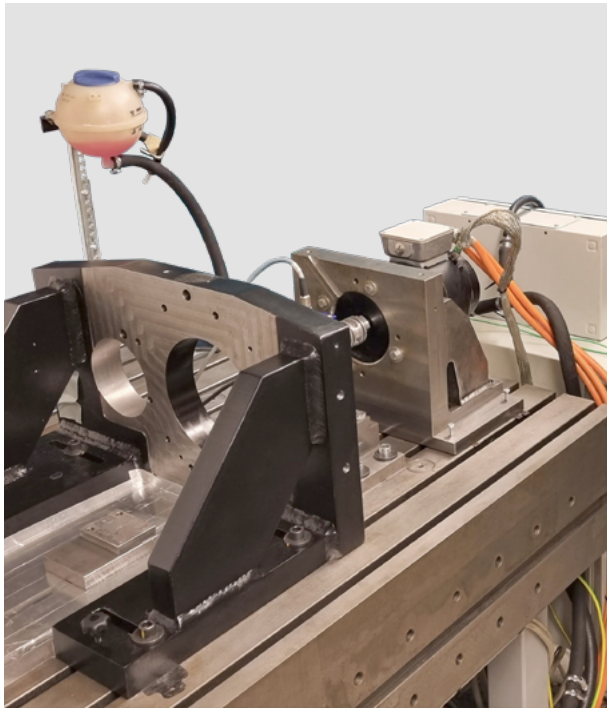
# Development Test Bench for High-Speed Drives

Mechatronics Lab



**FKFS.de**





Development Test Bench for High-Speed Drives



ePowertrain testing

## Technical Properties

### Input eDrive

Power, max.	157 kW
Torque, max.	300 Nm
Speed, max.	13.000 1/min

### Alternative input eDrive

Power, max.	35 kW
Torque, max.	14 Nm
Speed, max.	24.000 1/min

### Battery simulator

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

## The Test Bench

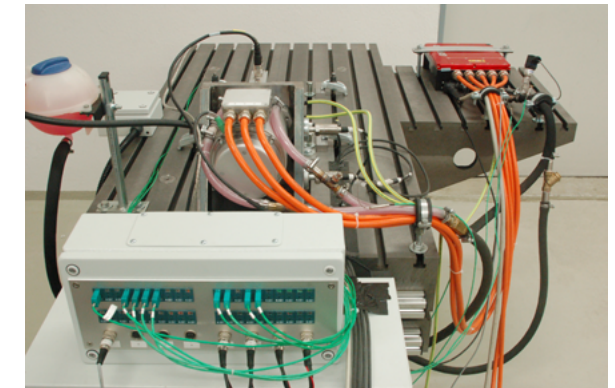
The test bench enables the testing of eDrives in very early stage of development. For this it provides high speed up to 24.000 rpm but low torque. Typical applications are highly precise drag torque measurements and thermal examinations under the influence of rotational speed.

In order to achieve the maximum possible flexibility during testing, the test bench has a modular and flexible design.

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

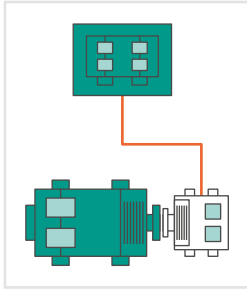
Test bench equipment:

- Hardware-in-the-loop simulation environment
- Common tools for remaining bus simulation, diagnosis and application
- A comprehensive range of measurement technology (mechanical, electrical including high-voltage, hydraulic, thermal)
- Conditioning and media supply
- Sensor for highly precise drag torque measurement
- High-resolution vibration measurement technology
- Early damage detection system
- Operational balancing device

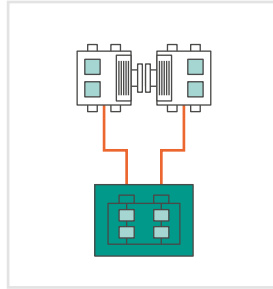


Development Test Bench for High-Speed Drives

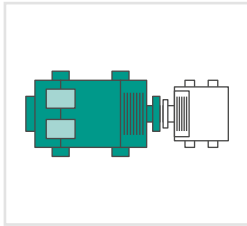
## Testing Options



eDrive testing

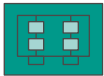


Back-to-back testing



Towing testing

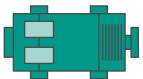
### Legend:



Battery simulator



eDrive



Input eDrive

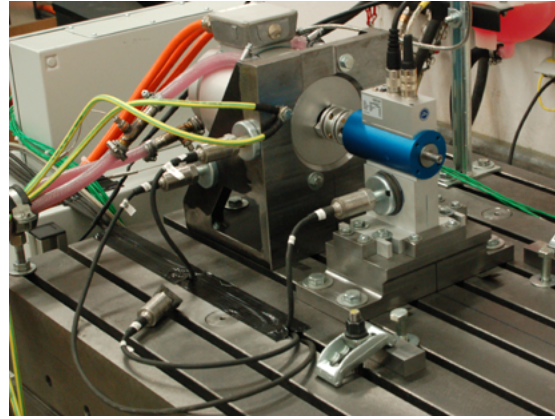


eDrive mechanical design

■ Test bench

□ Device under test

## Range of Services



Sensor for highly precise drag torque measurement

- **Initial commissioning**
- **Efficiency** measurements (mechanical and electrical) and highly precise **drag torque** measurements
- 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 take on 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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