## Technical Specifications

### Dyno Performance
- **Nominal power:** 220 kW per axle
- **Overload:** 330 kW
- **Max. speed:** 250 km/h (694 rpm)
- **Max. drag force:** 10.5 kN at 80 km/h, 4.9 kN at 250 km/h

### Roller
- **Roller diameter:** 1.910 mm
- **Vehicle wheelbase:** 2.300 - 3.400 mm
- **Vehicle width:** 900 - 2.300 mm
- **Roller width:** 700 mm
- **Max. load per axle:** 3,000 kg

### Acoustic Chamber
- **Clear length:** 14.0 m
- **Clear width:** 10.7 m
- **Clear height:** 6.0 m
- **Cut-off frequency:** 63 Hz (third-octave band)

### Vehicle Fixation
- **Single-point driveability fixation rear,** via trailer coupling
- **Two-point fixation front and rear,** hook fixation and/or tension belt via tow coupling
- **Four-point axle leg fixation,** tension belt
- **Four-point wheel hub fixation**

## Contact

**Karlsruhe Institute of Technology (KIT)**  
IPEK Institute of Product Engineering  
Dipl.-Ing. Sascha Ott  
Managing Director Institute of Product Engineering  
Campus Ost  
Rintheimer Querallee 2, Building 70.14  
76131 Karlsruhe  
Phone: +49 721 608 43681  
Mail: Sascha.Ott@kit.edu

[www.ipek.kit.edu](http://www.ipek.kit.edu)

## Organizational Questions

**Yannik Weber**  
+49 721 608 47176  
E-Mail: yannik.weber@kit.edu

**Updated March 2022  
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Research

The acoustic chassis dyno with Vehicle-in-the-Loop technology and two driven axles is feasible for investigations in acoustics and vibrations of passenger cars under real road conditions. The chassis dyno is surrounded by a semi-anechoic acoustic chamber (DIN EN ISO 3745, accuracy class 1, lower cut-off frequency 63 Hz, third-octave band).

Main research
- NVH investigations in acoustics, vibrations and driving comfort
- Design of validation environments and methods according to the IPEK x-in-the-loop approach for drive systems
- Investigation and evaluation of driveability
- Operation- and drive-strategies
- Modeling, parameter identification and verification
- Virtual car
- Driver models and test run automation
- Area of conflict: performance, safety, energy efficiency
- Multi-domain-optimization (MDO)
- Comfort objectification
- Vehicle performance test
- Fuel consumption measurement
- Emission measurement

Instrumentation / Sensors
- Binaural artificial head
- Binaural microphone
- Near- and free field microphones
- Triaxial vibration sensors
- Uniaxial vibration sensors incl. calibration equipment
- Laser surface velocimeter
- Handheld speedometer with analogue output
- Infrared camera

Driving robot (Stähle SAP 2000)
- Accelerator-, brake-, clutch pedal
- Shifting (manual, automatic), ignition
- Driving cycle (fuel consumption, etc.)

Acoustic Camera (HEADVisor)
- Array of 56 microphones with Beamforming-technology for online source identification
- Frequency range 300 Hz to 20 kHz
- Distance between Array and Source ranging from 30 cm up to 200 m

3D sound intensity probe (LMS SoundBrush)
- Frequency range: 100 – 4.000 Hz
- Dynamic range: 33 dB(A) – 150 dB

3D scanning vibrometer (Polytec PSV 400)
- Contactless acquisition of 3D surface vibrations
- Target size 1 mm² up to several m²
- 512 x 512 measuring points per scan

Chassis dyno controller
- Flexible test run and maneuver definition (set point of drag force and driving speed)
- Drive cycles and load spectrum in road-load-simulation

Driveability evaluation (AVL DRIVE™)
- Objective evaluation in real time (VDI 2563)
- Uses ca. 450 criteria
- Evaluation of 75 driving states