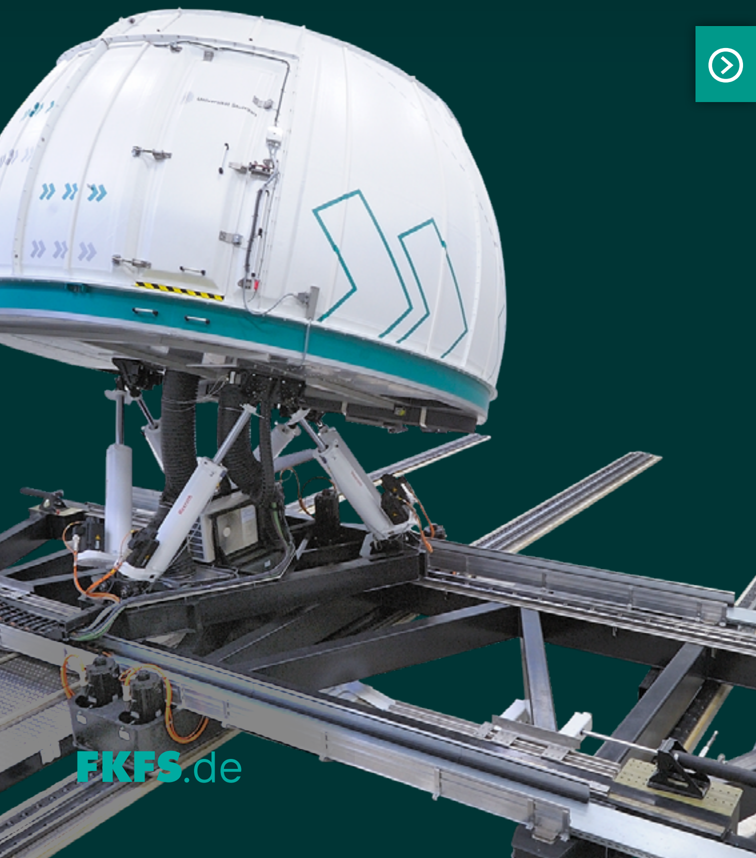
Interactive Test Drives Close to Reality

Stuttgart Driving Simulator



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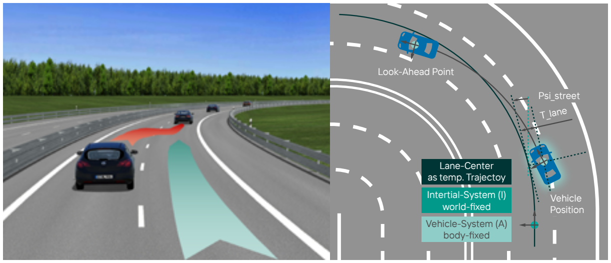
Use Cases

Dome interior with Porsche 911 mockup

Interactive Test Drives Close to Reality

- 9 axes motion system
- 10 by 7 meters linear motion space
- +/- 150° yaw motion
- 360° surround view
- Complete vehicle interior
- Full-size vehicle mock-ups
- Spatial sound system
- Motion sickness avoiding scenario design



Environment & traffic simulation for ADAS testing

ADAS/AD

- Fully automated driving
- ADAS/AD system modelling
- Complex traffic simulation
- Car sickness avoiding path planning
- Electronic horizon
- Active steering wheel/ drive pedal/brake pedal
- Comfort rating and driver interaction for L2 to L4 systems

Multibody dynamics simulation

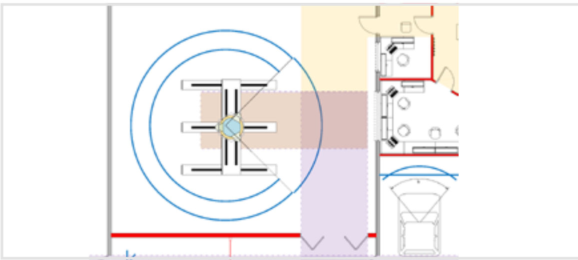
Chassis Development & Vehicle Handling

- Highly dynamic motion system
- Integration of OEM specific simulation models
- Full NVH spectrum
- Synthetic & real road surfaces
- Crosswind simulation
- Choice of state-of-the-art simulation software and models
- Universal powertrain library
- Simulation model validation by road and rig tests

Truck cabin

Use Case Dependent Mock-up Choice

- Medium-sized vehicle
- Sports car
- Commercial vehicle
- People mover



Layout of driving-simulator facilities

Driving Simulator Consulting

- Driving simulator design and specification based on use cases
- Mock-up specification
- Building and infrastructure design for driving simulators
- Real-time software frameworks
- Tendering and procurement support
- Driving scenario desgin and implementation

Application specific motion-cueing algorithms

Motion Cueing Development

- Implementation of customer-specific MCAs for all simulator brands
- System identification
- Safety features
- Model predictive control/adaptive algorithms/lane based direct cueing
- User interface

Safety-critical tests in a controlled environment

Safety

- Functional Safety/ SOTIF
- Security
- Exact scenario reproduction
- NCAP tests
- Safe testing environment
- Data recording and analysis

Interactive calibration of transmission ECU

Virtual Calibration and Application

- Application of vehicle functions
- Testing early-phase engine and powertrain concepts
- Usage of widespread calibration tools
- Real-time capable integration of ECUs via HiL/SiL/processor emulation
- Replay of road measurements

Research

EEG measurements of perception of visual and acoustic events

Human Factors & Biophysical Measurements

- Perception
- EEG/ECG
- Motion sickness
- Biomechanics

Using CARLA as a co-simulation tool for LiDAR sensor simulation

Sensor Simulation

- Highly detailed environment simulation
- Multi simulation handling
- Different sensor modalities Camera, LiDAR, Radar

Subject study to examine muscle tone & strength under near-crash conditions

User Experience

- Modular vehicle interior
- Driver monitoring
- Eye tracking
- Subject studies
- Interactive HMI testing

Contact

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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.

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