Testing Facilities

Cornering & Traction Test Rig MTS Flat-Trac IV CT plus

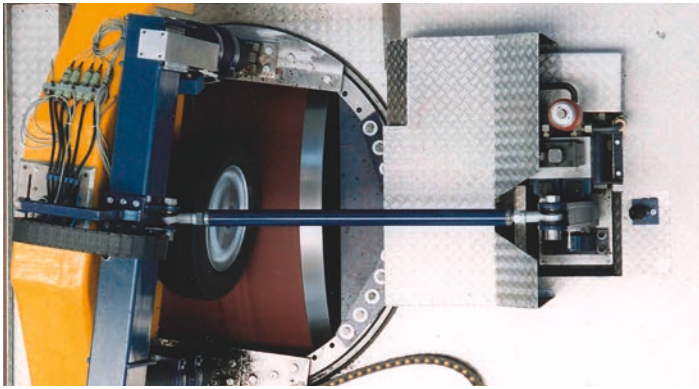
Applications

- steady-state force and moment measurement
- dynamic force and moment measurement
- slip angel sweeps tests
- tractive tests
- sinusoidal slip angle tests
- sinusoidal radial deflection tests
- simulation testing
- effective rolling radius measurement
- support of wet traction testing

Technical Data

- longitudinal force F_x: ± 18 kN
- lateral force F_y: ± 20 kN
- max. wheel load F_z: 25 kN
- wheel torque: ± 6000 Nm
- slip angle: ± 20° (50 °/s max velocity)
- camber angle: ± 10° (8 °/sec max velocity)
- roadway velocity: ± 250 km/h
- max. tyre outside diameter: 910 mm
- max. loaded tyre diameter: 910 mm
- coating: Korund 3M P120
- electric drive system

Motorcycle Tyre Test Rig



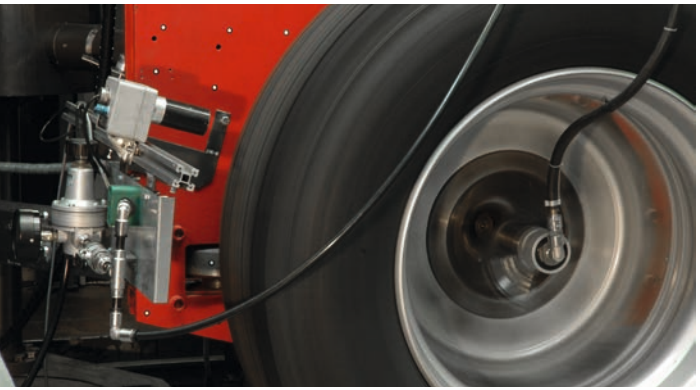
Application

- determination of force transmission behaviour
- tyre wear behaviour

Technical Data

- max. wheel load F_z: 12 kN
- tyre slip angle: - 12 ° to 12 °
  (dyn.: ± 2 ° at 5 Hz)
- camber angle: - 45 ° – + 20 °
  (dyn.: ± 5 ° at 5 Hz)
- max. speed: 180 km/h
- drum diameter: 1.59 m
- drum coating: Korund 3M P80

Truck Tyre Test Rig



Application

- determination of force transmission behaviour
- rolling resistance measurements
- determination of tyre vibration characteristics
- tyre stiffness measurements

Technical Data

- max. wheel load F_z: 50 kN
- max. brake torque: 16 kNm
- tyre slip angle: ± 15 °
- camber angle: ± 10 °
- max. speed: 120 km/h
- max. tyre diameter: 1070 cm
- drum diameter: 2.5 m
- drum coating: Korund 3M P120
- tyre pressure control device

Stiffness Tyre Test Rig

Application

- Fully automated static vertical, lateral, longitudinal and torsional stiffness measurements of non-rolling tyre; static stiffness data on sharp obstacles; contact patch pressure distribution and geometry analysis
- Precise measurement with low displacement rates and therefore high repeatability according to OEM and typre manufacturer requirements

Technical Data

- longitudinal force F_X: 40 kN
- lateral force F_Y: 40 kN
- max. wheel load F_Z: 40 kN
- camber angle: ± 9.5 °
- steering angle: ± 80 °
- max. travel XY: ± 130 mm
- max. tyre diameter: 1430 mm
- max. tyre width: 380 mm
- tire contact surface: Korund 3M P120

Cleat Tyre Test Rig

Application

- Measurements with highest demands on structural rigidity of the test rig

Technical Data

- longitudinal force F_x: ± 20 kN
- lateral force F_y: ± 20 kN
- max. wheel load F_z: 30 kN
- max. speed: 90 km/h
- max. tyre diameter: 850 mm
- drum diameter: 1.59 m
- drum coating: steel
- retention force of the clamp unit (μ = 0.3): 240 kN

Mobile Tyre Test Trailer

Application

- determination of tyre characteristics on real road surfaces and outer drum
- determination of tyre characteristics in different weather conditions
- rolling resistance measurements

Technical Data

- longitudinal force F_x: ± 40 kN
- lateral force F_y: ± 40 kN
- max. wheel load F_z: 60 kN
- max. braking torque: 25 kNm
- tyre slip angle: ± 45 °, 2 °/s
- camber angle: ± 10 °
  - camber axis on road surface
- max. speed: 90 km/h
- wheel diameter: 560 mm – 1240 mm
- dynamic wheel load control for higher measurement accuracy

Linear Friction Test Rig

Application

- investigation of different friction conditions
- investigation of influence of temperature on rubber friction
- investigation of influence of road roughness on friction coefficient

Technical Data

- specimen size: 60 mm x 60 mm
- pressure: 0.3 bar – 3.5 bar
- speed: 0.001 m/s – 1.5 m/s
- max. temperature: 80 °C
- 3D force measurement: ± 2000 N
- accuracy: ± 0.1 %
- device is portable

Dynamic Vertical Excitation Test Rig

Application

- investigation of highly dynamic stiffness and damping characteristics of passenger car and motorsports tyres
- investigation of the influence of wheel load fluctuations on side force generation
- vertical excitation up to 50 Hz, with or without slip angle

Technical Data

- max. wheel load F_z: 20 kN
- static side slip angle: ± 6 °
- max. speed: 120 km/h
- wheel dimensions: 13" – 20"
- drum diameter: 2.5 m
- max. excitation frequency: 50 Hz (depending on wheel mass and amplitude)

Servo Hydraulic Test Centre

Application

- endurance strength investigation of complete vehicles, vehicle structures and components
- investigation of vehicle comfort characteristics
- determination of material parameters
- material property identification
- quasistatical crush testing for analyzing of body-in-white deformation and specimen deformation behavior (e. g. FMVSS 214)

Technical Data

- modular test bench system for individual testing
- 2 sprung foundations: 15 m x 6 m and 4 m x 3 m
- 20 hydraulic cylinders:
  - force: 10 kN – 350 kN
  - stroke: 100 mm – 1000 mm
  - frequency: f_{max} 150 Hz
- variable climate boxes
- 8 MTS-Flextest control loops (position- and force control, RPC for iteration further signals)

Drop Tower Test Bench

Application

- analysis of the energy absorption capability of structures and materials
- cost-efficient substitution of crash repair tests
- reproduction of impact configurations for pedestrian protection

Technical Data

- drop weights: 3.5 kg – 800 kg
- max. impact velocity: 42 km/h
- collection of impactor deceleration, impactor travel and reaction forces with 100 kHz
- digital highspeed video cameras with max. 5000 fps
- max. deformation: 500 mm

fka
Steinbachstr. 7
52074 Aachen
Germany

+49 241 8861 0
info@fka.de
www.fka.de
www.fka.de/xing
www.fka.de/linkedin