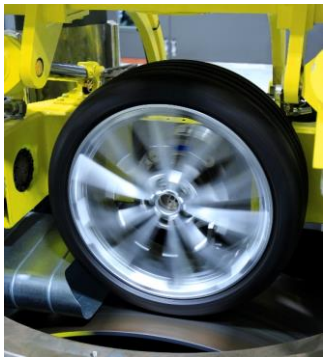
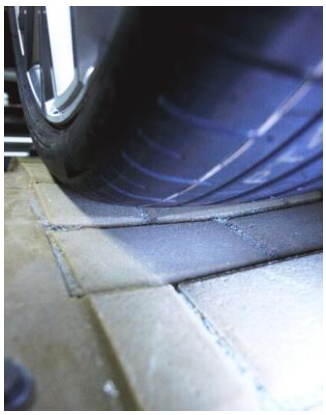
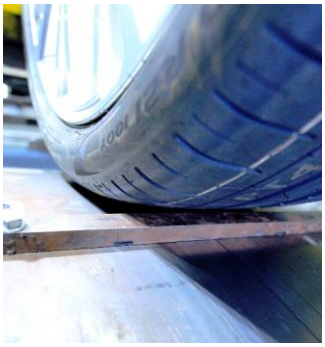
Tire test rig







Main applications

- Tire vibration, Cleat crossings
- Quasi-static and dynamic lateral force characteristics
- High-load and high-speed tests
- Simulation of dynamic driving loads
- Tests according to the TIME procedure
- Homologation tests
- Uniformity tests
- Rolling resistance
- Quasi-static and dynamic tire deformation
- Rut analysis
- Structure-borne noise transmission

Technical Data

- Drum diameter: 2 m
- Drum width: 0.5 m
- max. speed: 320 km/h
- max. wheel load: 30 kN
- max. lateral force: 20 kN
- max. slip angle: 90 °
- max. camber angle: 45 °
- Dynamic slip angle: up to approx. 35 °/s
- camber angle dynamics: up to approx. 35 °/s
- max. tire diameter: 900 mm

Specimens

- Car tires
- Motorcycle tires
- Light truck tires

Special features

Various road surfaces possible

High stiffness (35 kN/mm, 1st EF > 130 Hz)

Location

FVZ, August-Bebel-Straße 32, 01219 Dresden, Germany

Measured values

- Force: Longitudinal force
  Lateral force
  Vertical force
- Moment: Tilt torque
  Steering torque
- Displacement: Wheel and drum speed
  Distance wheel center-drum
- Tire deformation
- Tire temperature
- Static & dynamic wheel radius
- Slip and camber angle
- Tire inflation pressure

Measuring instruments

- Measuring hub (Kistler 9295A)
- Thermal camera (Optris PI 640)
- Temperature (Micro Epsilon CT)
- Tire inflation pressure sensor (ISA Racing)
- Inflation pressure control system (Festo)

Equipment

- Sliding device for transverse and longitudinal excitation with various surfaces (steel, Korund, asphalt, ..)
- Track surfaces (corundum, acoustic surface, concrete paving, granite paving, rutting, sinusoidal wave track)
- Straight and angled cleats in many dimensions
- Tire pressure measuring and control system: 0..6 bar, measuring accuracy 15 mbar, measuring frequency 2 Hz
- Pressure sensitive foils for contact pressure measurement
- Robotic measuring arm for determining the outer contour of tires and rims
- Tire pendulum device for determining moments of inertia Jyy, Jzz
- Scales for weight determination
- Mounting and balancing machine

Software for control and data acquisition

- LABView
- DIAdem

Available connections in the test cell

- Electrical connection 220 V 16 A, 400 V 16 A, 32 A, 63 A
- Compressed air 8 bar

Contact

Dipl.-Ing. Jan Kubenz

Head of research in vehicle physics, testing technologies and simulation methods

Email: jan.kubenz@tu-dresden.de

Tel.: +49 (0)351 / 463-34344

Fax.: +49 (0)351 / 463-37066