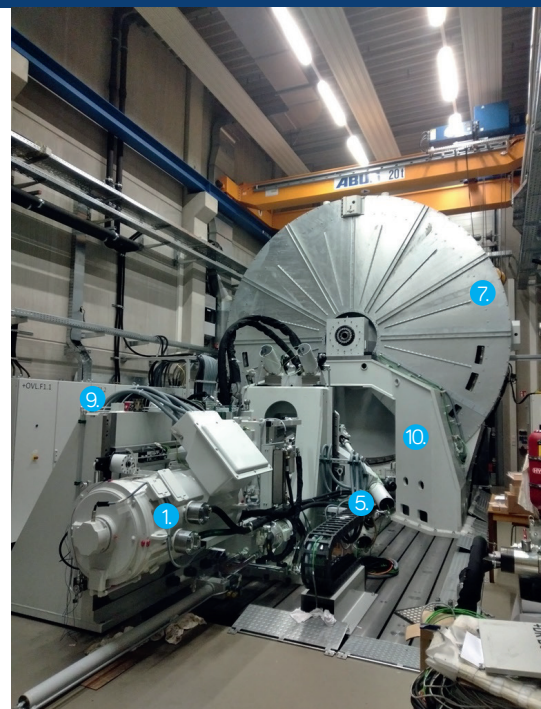
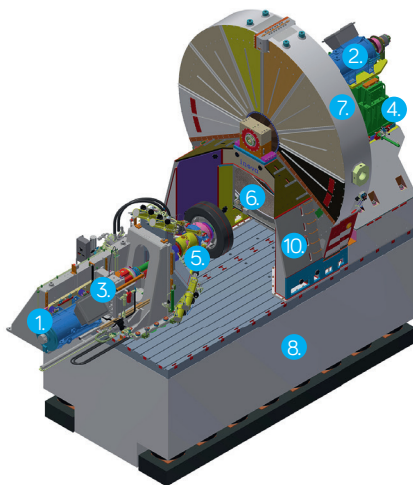


## Large Tire Inner Drum Test Stand (GRIPS)

for analyzing the dynamic operating behavior of car and truck tires

- 1 E-motor wheel drive (630 kW)
- 2 E-motor drum drive (630 kW)
- 3 Gearbox wheel drive
- 4 Gearbox drum drive
- 5 Hexapod with measuring hub
- 6 Inner drum (inner Ø 4.5m)
- 7 Drum enclosure
- 8 Vibration foundation (300t, air-suspended)
- 9 Frequency converter
- 10 Drum gantry



### Technical information

#### Drive sizes on the wheel

	Passenger car tires	Truck tires
Max. Wheel speed (Max. speed)	2200 min <sup>-1</sup> (250 km/h)	502 min <sup>-1</sup> (102 km/h)
Max. Torque at the wheel	4054 Nm	14044 Nm
Tire radius	min. 300mm (Bspw. 185/60R15)	max. 538 mm (Bspw. 315/80 R 22,5)

#### Measuring range

	Car measuring hub	Truck measuring hub
Peripheral force F <sub>x</sub>	± 20 kN	60 kN
Dyn. side load F <sub>y</sub>	± 20 kN	± 40 kN
Wheel load F <sub>z</sub>	0...30kN	0...60kN
Camber moment M <sub>x</sub>	± 28 kNm	± 29 kNm
Drive / braking torque M <sub>y</sub>	± 3 kNm	± 15 kNm
Restoring torque M <sub>z</sub>	± 1,24 kNm	± 9 kNm

#### Dynamics (Hexapod)

Direction	Max. Acceleration	Max. Path / Angle
Transverse displacement y	± 70 m/s <sup>2</sup>	
Deflection z	± 50 m/s <sup>2</sup>	
Camber angles y	± 80 rad/s <sup>2</sup>	± 10 °
Angle of skew a	± 28 kNm	± 29 kNm
Max. Adjustment frequency	20 Hz	

### Fields of application and special features

- Determination of tire characteristics (lateral force slip angle, circumferential force slip, combined load)
- Investigation of tire and road wear as well as particle formation
- Mapping of dynamic driving conditions (e.g. lane changes) even at high loads
- Experimental analysis of the static and dynamic behavior of tires, wheels and complete wheel suspensions as well as their interaction and
- Representation and experimental analysis of virtual suspensions

#### Medium:

- Use of powerful wheel and drum drive motors and load-specific measuring hubs for car and truck tires
- Dynamic wheel guidance using Hexapod with max. 20 Hz adjustment frequency and
- Real road surface