

# **Bertrandt Powertrain Solution Center**

All-wheel A/C roller dynamometers with altitude chamber Christian Eberle | 15.02.2022

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#### The entire world in one place

Whether battery-electric, hybrid or internal combustion engine drive - with the **Bertrandt Powertrain Solution Center** in Wolfsburg or Munich, we offer **validation**, certification and real-driving emissions tests for all drive concepts - in accordance with legal and/or customer-specific requirements.





#### **Technical data**

## All-wheel A/C roller test stands with altitude chamber

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-☆: 🖟 Temperature range:

- Speed:
- **世上** HV charging infrastructure:
- Altitude simulation:



Sunlight simulation:



**Emission measurement technology:** 

From -25 °C to +45 °C

Up to 300 km/h

550 kW

22KW (400 kW\*)

4200m (5.000 m\*) [↑ 3m/s | ↓ 6m/s] Irradiable area: 7 m x 2.5 m

AVL Slim Line



Office area

climate equipped cha dynamometers with altitude chamber -25 °C/+45 °C

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## Technical data All-wheel A/C roller dynamometers with altitude chamber

## Roll Performance 8-8-

Manufacturer	AVL customs
Туре	AVL ROADSIM 48" MIM 4x2
Roller diameter	48" parting roll
Power	2 x 360 kW
Flywheel mass range (1axis)	454 kg 4.250 kg
Flywheel mass range (2 axis)	800 kg 8.500 kg
Flywheel masses	Electrically simulated
Max. Axle load	2.500 kg
Max. Speed	300 km/h
Axle distance	1.800 – 4.500 mm
Track width	900 mm Inner edges of tires 2.030 mm Outer edges of tires
Vehicle holder systems	<ul> <li>Vehicle weight max. 3,500 kg</li> <li>Maximum acceleration 10 m/s<sup>2</sup></li> <li>Maximum tractive force 30,000 N</li> </ul>

### **Emission Measurement**



Manufacturer CVS plant	AVL Emission Test Systems, Typ CVS AL LE
Measuring principle	Critical Flow Venturi (CFV) / 4 CFV
Maximum flow rate	40 nm³/min
Options	<ul> <li>Isolated and heated;</li> <li>Tail Pipe Pressure Control</li> <li>Dilution Air</li> <li>Flow measurement</li> </ul>
Manufacturer exhaust gas measuring system	AVL Emission Test Systems, Type AMA SL D1
Analyzer CO2 /CO/NOx	IRD SL/IRD SL/CLD SL
Analyzer THC/CH4/Tunnel THC	Twin FID SL
Special measurement technology	<ul> <li>2 x 3 lines raw exhaust gas measurement</li> <li>7 x FTIR (raw exhaust gas) / 4 x Micro Soot</li> <li>4 x Opacimeter</li> <li>AVL Particle Sampling System</li> <li>AVL Particle Counter</li> <li>AVL Filter Weighing Robot FWR 585</li> <li>Hioki 3390 current power meter</li> <li>Quantum cascade laser for the measurement of nitrous oxide (N2O)</li> </ul>

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## Technical data All-wheel A/C roller dynamometers with altitude chamber

Height simulation 📈

- Altitudes from ambient Altitude 4200m
  - 5000 m in progress
- Exhaust gas measurement via the CVS up to an altitude of 3,000 m
- Pressure adjustment [↑ 3m/s | ↓ 6m/s]

## Temperature range

- From -25 °C to + 45 °C
- Adjustable test stand humidity

#### **Traction blower**

- Manufacturer: AVL
- Type: RDE & SC03 Blower

## HV charging infrastructure

- 16 x 22 kW charging station
- 1 x 160 kW outdoor charging station
- In progress: 8 x 400 kW charging station
- Discharge and range testing for BEVs
- Adaptation of SOC HV storage of BEV vehicles
- Existing safety concept for operation of PHEV and BEV vehicles, special extinguishing equipment (fire blanket) and fire extinguishers with additives

## Sunlight simulation

- Manufacturer: BF Engineering
- Maximum with up to 94 kW power
- Floodlights: 24 x BF SUN 4.000 W
- Daylight lamps: Type Osram HMI 4.000 W DXS
- Motorized shading: tunnel drive/cloud simulatable
- irradiable area 7 x 2,5 m

## Special measurement technology

- 2 x 3 lines raw exhaust gas measurement
- 7 x FTIR (raw exhaust gas) / 4 x Micro Soot
- 4 x Opacimeter
- AVL Particle Sampling System
- AVL Particle Counter
- AVL Filter Weighing Robot FWR 585
- Hioki 3390 current power meter
- Quantum cascade laser for measurement of nitrous oxide (N2O)
- Driving robot Stähle SAP 2000 for computercontrolled driving of vehicles on test benches
- 2 lines activated carbon filter loading station for the legally required conditioning of AKF





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## anfragen@bertrandt.com

→ https://www.bertrandt.com/bpsc/

- technical specifications
- all solutions and services
- background information

