

Bosch Engineering

Applications Test Center

Climatic Test Benches



BOSCH

Invented for life



Technical equipment

Roller set

- ▶ MAHA 48" 4-wheel roller/single roller test bench
- ▶ 260/300 kW 2WD/4WD
- ▶ 260 km/h max. speed
- ▶ wheelbase 1.80 to 4.20 m max. axle weight 2 000 kg
- ▶ Up to 11 000 lbs max. Inertia
- ▶ Ascending/descending simulation
- ▶ Driving resistance simulation possible from 0 km/h

Climatic test bench

- ▶ Temperature range: -35°C to $+35^{\circ}\text{C}$
- ▶ Relative humidity 30% to 70% (at $+5^{\circ}\text{C}$ to $+30^{\circ}\text{C}$)

Headwind fan

- ▶ Max. volume flow 56 000 m^3
- ▶ 0 to 120 km/h wind velocity
- ▶ Wind outlet area W: 0.85 m; H: 0.61 m

Climatic Test Bench

The temperature on the climatic test bench can be set to a value between -35°C and $+35^{\circ}\text{C}$. In the cold area, there are eight cold cabinets available for pre-setting the temperature and for individual preparation of the vehicles for testing. In addition, both a CVS tunnel for determining the exhaust-gas emissions and a range of exhaust-gas measurement systems have been installed.

Scope of Application

The most important applications of the climatic test bench include emission testing at -7°C and start-up and warm-up adjustments. Additional applications are the vehicle-specific calibration of the OBD functions and the engine map parameterization in the low temperature range. Temperature measurements of components as well as the investigation of general low-temperature behavior complete the scope of application.



Exhaust-Gas Measurement System

- ▶ CVS system
- ▶ Diesel dilution tunnel
- ▶ Bag analysis
- ▶ Three modular analysis systems
- ▶ Particle measurement (at -7°C test conditions)
- ▶ Particle number measurement (at -7°C test conditions)
- ▶ N_2O measurement
- ▶ Opacimeter
- ▶ Micro-soot sensor
- ▶ PTFM flow meter
- ▶ NH_3 measurement

Cold Cabinets/Cold-Start Cabinets

- ▶ Temperature range: -40°C to $+35^{\circ}\text{C}$
- ▶ Six climatic cabinets for controlling the temperature of the vehicle
- ▶ Two cold-start cabinets with exhaust-gas extraction system

Vehicle Conditioning

- ▶ Two temperature-regulated halls for up to 20 vehicles
- ▶ Temperature range $+22^{\circ}\text{C}$ or $+20^{\circ}\text{C}$ to $+28^{\circ}\text{C}$

Exhaust-Gas Measurement System

The available exhaust-gas measurement system fulfils all the requirements of EU6 and US legislation, e.g. EU6, Tier2bin5, Lev III. This means that in addition to the particle mass, the particle numbers are also measured. Additional measurement systems such as untreated exhaust-gas analysis, soot or smoke density measurement are important for optimizing emission characteristics and diagnostic functions.

Cold Cabinets

In the cold area, eight cold cabinets with a temperature range of -40°C to $+35^{\circ}\text{C}$ are available for conditioning vehicles. In addition to fixed temperature settings, customer-specific temperature profiles can be implemented in the cold cabinets. All of the cold cabinets are equipped with battery charging facilities, 230/400-V power supply and temperature measurement systems. The integrated exhaust-gas extraction systems in two of the cold cabinets make it possible to carry out cold-start tests in the cold area, even outside the roller test benches. Additional areas of application arise from component tests and temperature safeguarding, etc.

Security Gate

The vehicles enter the cold area via a vehicle security gate. Refilling and emptying of fuel tanks takes place here at temperatures down to -10°C , for which there are six standard types of gasoline, diesel and special fuels available.

Trolley Transport System

There is a trolley transport system available for the rapid transport of vehicles from the cold cabinets to the cold roller test bench. Thermal influences are therefore minimized and an efficient testing procedure is guaranteed.

Our Service

- ▶ Organization of the testing procedure
- ▶ Professional vehicle preparation
- ▶ Secure assembly halls for prototypes with access control
- ▶ Individual preparation and evaluation of the measurement results

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