

Testing services

Emissions test bench

Bosch Engineering



BOSCH

Invented for life



PRODUCT BENEFITS

- ▶ Determining vehicle emissions behavior in compliance with regulations such as Federal Test Procedure 75 (FTP 75), Worldwide Legislation Test Procedure (WLTP), or Japanese law (JC08)
- ▶ Highly precise and reliable test results thanks to the use of state-of-the-art measuring technology
- ▶ Faster development time due to precision and individually prepared measurement results and analysis
- ▶ Reproducible measurement results made possible by automation technology

80 emissions cycles

can be run to efficiently test applications for use cases around the world.

TASK

On its emissions test bench, Bosch Engineering GmbH can examine the emissions behavior of vehicles with a range of power-train systems. Exhaust-gas tests on gasoline and diesel engines comply with legal requirements in the EU, the U.S., and Japan (plus other countries). For electric vehicles, we offer tests that determine power consumption and range in driving cycles such as MNEFZ, FTP75, and WLTP, as well as in the customer's own driving cycles. At the same time, we can adapt OBD functions, analyses of component aging behavior, and measurement of the carbon footprint to the specific vehicle. In addition the test bench simulates driving conditions for front-, rear-, and four-wheel drive vehicles at a constant temperature between -7°C and $+35^{\circ}\text{C}$, and allows tests on vehicles with total power output of up to 150 kW at speeds of up to 200 km/h. With state-of-the-art emissions measuring technology, we deliver highly precise and reliable measurement results for the mobility concepts of today and tomorrow.

FUNCTION

When it comes to optimizing emissions behavior and OBD diagnostics for passenger cars, motorcycles, leisure vehicles, supercars, or commercial vehicles, we offer solutions that integrate dynamometer, measurement and automation technology, and data analysis. We have at our disposal three analysis systems for measuring untreated exhaust gas, as well as ways to measure opacity and to measure soot in untreated or diluted exhaust with the help of a micro soot sensor. This puts us in an ideal position to analyze emissions concepts that feature, for example, SCR and NSC catalytic converters, and then refine and calibrate them. Our comprehensive measurements over the years, combined with optimized calibration and regular maintenance, mean we can ensure precision and quality of the highest degree.

TECHNICAL CHARACTERISTICS OF THE EMISSIONS TEST BENCH

Vehicle conditioning	Temperature range from 15°C to 28°C
Headwind fan	Volume flow of up to $41,600\text{m}^3/\text{h}$, wind speed up to 135 km/h (compliant with ECE R85 and 40 CFR1066)

48 analyzers

make it easy to characterize the various components for exhaust-gas treatment.

ROLLER SET

Single roller	48" MAHA AWD single rollers
Power output	FWD/RWD/AWD up to 150kW
Max. speed	200km/h
Wheelbase	1.8m to 4.2m
Flywheel	< 11,000lbs
Axle load	max. 2,000kg

EXHAUST-GAS EQUIPMENT

CVS dilution tunnel	Capacity 1.5 to $15.6\text{m}^3/\text{min}$
Measuring technology	Bag and modal analysis
N ₂ O measurement (untreated or diluted)	Quantum cascade laser (QCL)

UNTREATED EXHAUST-GAS EQUIPMENT

Analysis systems for untreated emissions	Measuring ammonia, NO ₂ , N ₂ O, NO, and NH ₃ in untreated exhaust
Emissions volume	Pitot tube flow meter (PTFM), 0 to $10,000\text{l}/\text{min}$

PARTICULATE MASS EQUIPMENT

Measuring technology	Gravimetric measurement of particulate mass, determination of particulate level
Soot	Micro soot sensor
Opacity	Opacimeter

OTHER MEASURING EQUIPMENT

Electrical	Hioki 3193 for determining state of charge of high-voltage batteries
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