Testing services

Climatic emissions test bench

Bosch Engineering

BOSCH
Invented for life

PRODUCT BENEFITS

- Protecting the vehicle from various environmental conditions by simulating the extremes
- Determining vehicle emissions behavior, in compliance with the regulations of numerous countries
- Less time needed for developing robust exhaust-gas treatment systems through the use of highly precise and individually prepared measurement results and analysis
- Faster development time thanks to reproducible results made possible by automation technology and constant climatic conditions

8 climatic chambers

make it possible to separately condition multiple vehicles, thus promoting efficient test preparation.

–30 °C to +35 °C

is the temperature range in which a vehicle's emissions behavior can be reliably determined.

TASK

On its climatic emissions test bench, Bosch Engineering GmbH primarily runs exhaust-gas tests that comply with legal requirements in the EU, the U.S., and Japan. Component testing under various climatic conditions is also possible. Further options include tests for vehicle cold starts and cold-start behavior, vehicle-specific customization of OBD functions, analyses of component aging behavior, measurement of carbon footprints, and analysis of temperature effects on emissions behavior. Our offer is rounded off by methods for determining power consumption and range in electric vehicles for statutory and customer-specific driving cycles.

FUNCTION

When it comes to optimizing emissions behavior and OBD diagnostics for passenger cars, motorcycles, leisure vehicles, supercars, or commercial vehicles, we offer a wide range of facilities. Our test bench features three analysis systems for measuring untreated exhaust gas, as well as facilities for measuring opacity and for measuring soot in untreated or diluted exhaust with the help of a micro soot sensor. Multiple vehicles can be conditioned separately in eight climate chambers, and the testing area itself can be set to temperatures ranging from –30 °C to +35 °C. 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 continuous calibration optimization and regular maintenance, mean we can ensure precision and quality of the highest degree.

TECHNICAL CHARACTERISTICS CLIMATIC EMISSIONS TEST BENCH

Vehicle conditioning	2 chambers with exhaust-gas extraction for start tests, temperature range of +15 °C to +28 °C, 8 climate chambers: –40 °C to +40 °C
Headwind fan	Volume flow of up to 41,600 m³/h, wind speed up to 135 km/h (compliant with ECE R85 and 40 CFR1066)

ROLLER SET

Single roller	48" MAHA AWD single rollers
Power output	FWD/RWD/AWD up to 300 kW
Max. speed	260 km/h
Wheelbase	1.80 m bis 4.20 m
Flywheel	> 11,000 lbs
Axle load	max. 2,000 kg

EXHAUST-GAS EQUIPMENT

CVS dilution tunnel	Capacity 1.5 to 15.6 m³/min
Measuring technology	Bag and modal analysis
N_2O measurement (untreated or diluted)	Quantum cascade laser (QCL)

UNTREATED EXHAUST-GAS EQUIPMENT

Analysis systems for untreated emissions	Measuring ammonia, NO_2, N_2O, NO, and NH_3 in untreated exhaust
Measuring emissions volume	Pitot tube flow meter (PTFM) 0 to 10,000 l/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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