

Variable Temperature EMISSIONS CHAMBER

HEAVY DUTY • DYNAMOMETER • CLIMATIC • POWERTRAIN

- Holds largest legal vehicles or 7 cars
- Controlled temperature -35°C to +50°C
- 48" single roller dyno- 200kW to 200 km/h
- Full road load & inertia simulation
- Light & heavy duty vehicles
- Real time particulate size & number distribution

Offering a breadth of expertise seldom available commercially, Millbrook can help solve the Powertrain challenges now facing engine developers and their specialist suppliers.

The Variable Temperature Emissions Chamber (VTEC) is designed to meet all current and future sub-zero light duty emissions tests as well as a wide range of non regulated test work, including whole vehicle heavy duty emissions testing.

Although primarily designed for emissions tests for both light and heavy duty vehicles, the facility can also undertake any test activities which require a controlled temperature between +50°C and -35°C. These tests include cold start engine performance, heater and demist test, hot fuel handling and air conditioning performance assessments.

The analytical system is built to the same high standards as the main Vehicle Emissions Laboratory and operates the same latest-generation industry leading software.

Technical SPECIFICATIONS

Test Chamber

- Size: 26.5m long, 6.5m wide, 5m high with space for large heavy duty vehicles of maximum legal design size or 7 passenger vehicles.
- Temperature range -35°C to +50°C.
- Controlled fresh air make up system.
- Vehicle directional air flow.

Chassis Dynamometer

- Single 48" roller design.
- Meets all Federal light duty specifications.
- Full road load simulation for heavy duty vehicles.
- Inertia simulation from 454kg to 20,000kg in 1kg increments.
- Light duty maximum speed 200km/h.
- Heavy duty maximum speed 130km/h.
- Constant tractive effort (continuous) 6119N from 0 to 118km/h.
- Constant power (continuous) of 200kW from 118 to 200km/h.

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Technical SPECIFICATIONS

Vehicle Cooling

- High capacity twin nozzle speed tracking cooling fan.
- Speed range: 10 to 120km/h; 0 to 134,810m³/h.

Analytical System

- Custom built to accommodate a wide variety of vehicles.
- Petrol: Raw engine out & tailpipe real time modal analysis, CO₂ tracer & bag.
- Diesel: Raw engine out & tailpipe real time modal analysis, CO₂ tracer & bag.
- T.E.O.M real time modal particulate analysis system.
- E.L.P.I. real time modal particulate size (10 micron down to 0.03 micron in 12 sizes) and mass distribution analysis system.

Gas Handling

- Dual bulkstream Critical Flow Venturi (CFV): Constant Volume Sampler (CVS).
- Separate diesel and petrol bulkstreams with separate sample capture systems.
- Diesel particulate system.

Data Handling

- Site computer Hewlett-Packard A990 linked to laboratory host computer.
- HP A900 with file transfer to PC network for engineer data analysis.
- High speed data logging.
- Colour test-on-test plotting/analysis.

Emission Test Capabilities

- All world wide light duty test cycles (Petrol & Diesel).
- Steady state (Petrol & Diesel).
- Custom test schedules (Petrol & Diesel).
- Heavy Duty whole vehicle emission tests to customer test schedules (Petrol & Diesel).
- Analyses for all cycles for: Raw, dilute, CO₂ tracer, catalyst efficiency & bag.

Non-Emission Test Capabilities

- Cold start engine performance.
- Cold/hot engine lubricant assessment.
- Heater and demist test.
- Hot fuel handling.
- Air conditioning performance assessments.

Millbrook OVERVIEW

Millbrook is one of Europe's leading locations for the development and demonstration of every type of land vehicle, from motorcycles and passenger cars to heavy commercial, military and off-road vehicles. Located at the geographical centre of the UK automotive and fuels industry and situated centrally in the strategic Oxford to Cambridge Arc just 65 kilometres to the north of London, our custom-built facility provides virtually every test, validation and homologation service necessary for today's demanding programmes, complemented by a worldwide reputation for confidentiality, service and competitiveness.

Although significant work has been done commercially on behalf of many research organisations, Millbrook has always focused on real world applications and understand the constraints, limitations and budgetary controls that affect our customers. Our staff have experience and expertise from backgrounds in test work within vehicle manufacturers' engineering departments, so they know what their customers expect from a test. Putting working relationships first, and seeing things from the customer's point of view, means Millbrook's support will survive the test of time.